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UNITED STATES DEPARTMENT OF AGRICULTURE

BULLETIN No. 292

Contribution from the Bureau of Biological Survey
HENRY W. HENSHAW, Chief

Washington, D. C. PROFESSIONAL PAPER October 25, 1915

DISTRIBUTION AND MIGRATION OF NORTH AMERICAN GULLS AND THEIR ALLIES

By

WELLS W. COOKE, Assistant Biologist

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WASHINGTON
GOVERNMENT PRINTING OFFICE
1915

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INTRODUCTION.

Gulls, including skuas and jægers, are represented in the United States by 22 species or subspecies and are important from several points of view. Belonging to the order of long-winged swimmers, they are strong of wing, and nearly all are coast-loving forms. They spend comparatively little of their time in fresh water; but some are true inland birds, frequenting prairies, marshes, and inland lakes.

ECONOMIC IMPORTANCE OF GULLS.

Flocks of gulls resting lightly on the waters of our harbors or following the wake of water craft are a familiar sight, but not every observer of the graceful motions of the birds is aware of the fact that gulls are the original "white wings." As sea scavengers they welcome as food dead fish, garbage, and offal of various sorts, and their

NOTE.—This bulletin presents precise information regarding the ranges of the several species of gulls and their allies, the skuas and jægers, especially the breeding ranges and migrations, and includes data for use for legislative reference to serve as a basis for legal protection for the species by States in which they are found. For general distribution.

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services in cleaning up such material are not to be regarded lightly. It will surprise many to learn that certain gulls render important inland service, especially to agriculture. At least one species, the California gull, is extremely fond of field mice, and during an outbreak of that pest in Nevada in 1907–8 hundreds of gulls assembled in and near the devastated alfalfa fields and fed entirely on mice, thus lending the farmers material aid in their warfare against the pestiferous little rodents. The skua also feeds on mice and lemmings. Several species of gulls render valuable service to agriculture by destroying insects also, and in spring hundreds of Franklin's gulls in Wisconsin and the Dakotas follow the plowman to pick up the insect larvæ uncovered by the share.

That at least one community has not been unmindful of the substantial debt it owes the gull is attested in Salt Lake City, where stands a monument surmounted by a bronze figure of two gulls, erected by the people of that city "in grateful remembrance" of the signal service rendered by these birds at a critical time in the history of the community. For three consecutive years—1848 to 1850—black crickets by millions threatened to ruin the crops upon which depended the very lives of the settlers. Large flocks of California gulls came to the rescue and devoured vast numbers of the destructive insects, until the fields were entirely freed from them. It is no wonder that the sentiment of the people of Utah as reflected through their laws affords gulls the fullest protection. It would be well if such sentiment prevailed elsewhere throughout the United States. However, within the last few years much progress has been made in protecting these most beautiful dwellers of coasts and marshes.

BIRD REFUGES.

On March 14, 1903, President Roosevelt issued an Executive order making Pelican Island, Fla., a bird reservation—the first established in the United States. To-day there are 68 bird reservations, varying in size from a few acres to many hundred square miles. Some 27 of these, situated on the seacoast or on islands in the Great Lakes, are resorted to by gulls during the breeding season, and here these birds find safety from human molestation, while local wardens have endeavored to reduce their native wild enemies to a minimum. The 27 national bird reservations frequented by gulls are: Breton Island, Tern Islands, East Timbalier Island, and Shell Keys, La.; Passage Key and Matlacha Pass, Fla.; Huron and Siskiwit Islands, Mich.; Lake Malheur, Klamath Lake, and Three Arch Rocks, Oreg.; Flattery Rocks, Quillayute Needles, and Copalis Rock, Wash.; Chase Lake, N. Dak.; Clear Lake and the Farallon Islands, Cal.; Green Bay, Wis.; and nine reservations in Alaska.

Among the birds frequenting these reservations are the glaucous-winged, western, herring, California, and laughing gulls. Thus these reservations protect several of the most important species of North American gulls.

PROTECTION BY PRIVATE ASSOCIATIONS.

In 1900, principally through the efforts of Mr. Abbott H. Thayer, a fund of $1,400 was raised for the protection of coast birds, particularly gulls and terns, along the Atlantic from Virginia to Maine. A wardenship system was inaugurated, and 23 bird wardens were appointed the first year. The next year $1,600 was raised, 27 wardens were engaged, and the work was extended to Florida, Louisiana, and Texas. In 1902, $2,000 was donated for the protection of gulls and terns, and about 30 wardens were engaged in watching their breeding grounds. From these beginnings the work of the National Association of Audubon Societies has grown until, in 1913, over $80,000 was spent by this association for bird protection. Out of the large number of guards and wardens employed that year a considerable portion were engaged in guarding the islands and beaches along the Atlantic coast, and so extensive has the work become and so thoroughly has it been systematized that there is probably no important colony of gulls or terns throughout the whole extent of the coast from Maine to Florida that is not guarded during the breeding season. On the Gulf coast from Florida to Texas a few colonies are protected, and along the Oregon coast colonies of breeding birds are guarded by State wardens.

The results of the protection thus afforded have been most gratifying. Herring gulls along the coast of Maine have increased decidedly, while laughing gulls are beginning to be common once more in various localities where they had been almost exterminated.

LEGAL PROTECTION.

Fully as important for the protection and increase of gulls has been the enactment of State laws prohibiting their killing at any time of year and of laws prohibiting the sale of their plumage. Gulls, with their close allies, the terns, have been among the greatest sufferers from the millinery trade. As is usually the case, the birds were shot on the breeding grounds during the height of the nesting season, thus causing the death not only of the parent birds, but insuring the death of the young birds by lingering starvation. A few years ago the public awoke to the barbarity of such slaughter, and after much agitation New Jersey, in 1885, enacted the first effective State law prohibiting the killing of gulls. This example has been followed by other States until now—1915—there are 40 States which

protect gulls all the year. Louisiana protects them during the breeding season, February 1 to August 1, while five States—Montana, Idaho, Nevada, Arizona, and New Mexico—offer them no protection at any time of year.

The surest way to protect any given bird is to remove the temptation to destroy it, and so the most certain way to stop the killing of gulls for the millinery trade is to prohibit the sale of gulls' wings and plumage, so that the plume hunter can find no market for his spoils. To California belongs the credit of incorporating in the game law of 1895 the first law in this country prohibiting the sale of gulls' plumage for millinery purposes. Many States followed this lead until, in 1910, New York, enacting the most drastic law of all, prohibited not only the sale but the having in possession of the plumage of any bird belonging to the same family as any of the birds of the State of New York.

DISTRIBUTION.

North American gulls and their allies include 29 species, one of which is divided into two subspecies, making a total of 30 forms. Three of these are birds of the Eastern Hemisphere which have occurred only accidentally in North America, while five others breed in the far North and are not known to occur in the United States even during migration or in winter. This leaves 22 forms of 21 species that are found in the United States. Of these, 7 both breed and winter in this country, 14 breed in the Arctic and occur here in migration or in winter, and 1 breeds south of the United States and then comes north in migration.

Old World Species Accidental in North America.

Siberian gull (*Larus affinis*). Once in Greenland.
Mew gull (*Larus canus*). Once in Labrador.
Little gull (*Larus minutus*). Once in Bermuda and once on Long Island.

Forms Breeding in the Arctic and Not Wintering in the United States.

Red-legged kittiwake (*Rissa brevirostris*). Not wintering south of the Aleutians.
Nelson's gull (*Larus nelsoni*). See note.
Slaty-backed gull (*Larus schistisagus*). Not wintering south of the Aleutians.
Vega gull (*Larus vegæ*). Not wintering south of the Aleutians.
Ross's gull (*Rhodostethia rosea*). Not wintering south of the Pribilofs.

Note.—Nelson's gull breeds in the Arctic, and, though it migrates south in winter as far as Lower California, it has not yet been taken in the United States.

Forms Breeding and Wintering in the United States.

Glaucous-winged gull (*Larus glaucescens*).
Western gull (*Larus occidentalis*).
Herring gull (*Larus argentatus*).
California gull (*Larus californicus*).
Ring-billed gull (*Larus delawarensis*).
Laughing gull (*Larus atricilla*).
Franklin's gull (*Larus franklini*).

FORMS BREEDING IN THE ARCTIC BUT OCCURRING IN THE UNITED STATES IN WINTER OR IN MIGRATION.

Skua (*Megalestris skua*).
Pomarine jæger (*Stercorarius pomarinus*).
Parasitic jæger (*Stercorarius parasiticus*).
Long-tailed jæger (*Stercorarius longicaudus*).
Ivory gull (*Pagophila alba*).
Kittiwake (*Rissa tridactyla tridactyla*).
Pacific kittiwake (*Rissa tridactyla pollicaris*).
Glaucous gull (*Larus hyperboreus*).
Iceland gull (*Larus leucopterus*).
Kumlien's gull (*Larus kumlieni*).
Great black-backed gull (*Larus marinus*).
Short-billed gull (*Larus brachyrhynchus*).
Heermann's gull (*Larus heermanni*). See note.
Bonaparte's gull (*Larus philadelphia*).
Sabine's gull (*Xema sabini*).

NOTE.—Heermann's gull breeds south of the United States and migrates north after the breeding season.

MIGRATION.

All the gulls of North America are migratory, but the distances traversed by the several species in migration vary widely. Some of them, notably Ross's gull and the red-legged kittiwake, remain near the Arctic throughout the year, and retreat southward in winter for only a few hundred miles. At the other extreme is Sabine's gull, which breeds north of the Arctic circle and winters on the coast of Peru, more than 5,000 miles away. Franklin's gull does not breed so far north as Sabine's gull, but it goes enough farther south on the coast of Chile to make its migration route fully 5,000 miles in length. Most of the gulls and their allies travel much shorter distances in their migrations, and comparatively few individuals winter as far as 2,000 miles from the breeding grounds.

Two gull-migration routes deserve special mention: Bonaparte's gull breeds about fresh water in the subarctic parts of northwestern North America, whence many individuals in fall migration travel 3,500 miles to the southeastward, reaching the Labrador coast by way of Hudson Bay before they turn southward toward their winter home on the coast of the South Atlantic States. The migration of Heermann's gull is unique among North American gulls, in that the species breeds south of the United States and at the end of the nesting season migrates north by thousands and swarms along the Pacific coast of the United States, even journeying to British Columbia. The birds remain on the California coast all winter and at the approach of the breeding season depart southward to their summer home.

ANNOTATED LIST OF SPECIES.

SKUA. *Megalestris skua* (BRÜNNICH).

The skua breeds in Iceland and on the Faroe and Shetland Islands. Though reported as breeding in North America, there seems to be no proof that it has ever nested in the Western Hemisphere, even in Greenland. The bulk of the birds winter off the coast of Europe south to Gibraltar, but the species is not rare at this season around

the banks of Nova Scotia and near Georges Banks, off the Massachusetts coast.

During migration it has occurred in Greenland at Disco Island, (Figgins), Unamak (Schalow), and Ivigtut (Helms), and has been noted in the eastern part of Hudson Strait (Low); near Lady Franklin Island, north of Hudson Strait, in September (Kumlien); a few on the Grand Banks off Newfoundland, in fall (Collins); one, at Belle Isle Strait, Labrador, June 22, 1882 (Turner); Ipswich Bay,

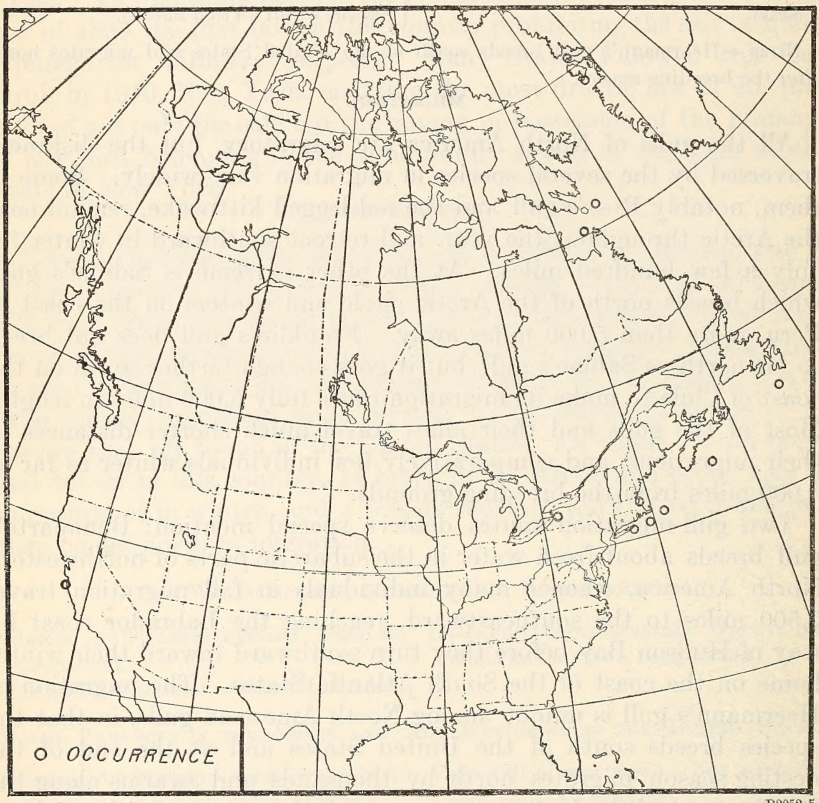


FIG. 1.—Skua (*Megalestris skua*). B2052-5

Mass., September 17, 1878 (Allen); a pair near Nantucket Island, October 17, 1883 (Collins); Woods Hole, Mass., September 19, 1889, August 30, 1889 (Edwards); Georges Banks, Mass., July, 1878 (Baird, Brewer, and Ridgway); one, Niagara River, N. Y., spring of 1886 (Bergtold); one, Montauk, N. Y., August 10, 1896 (Scott); one, near Amagansett, Long Island, N. Y., winter of 1885–86 (Dutcher); the species has wandered twice to the Pacific coast, since a specimen was taken by Colonel Pike off Monterey, Cal., many years ago, and one was taken in Monterey Bay, Cal., August 7, 1907 (Beck).

POMARINE JÆGER. *Stercorarius pomarinus* (TEMMINCK).

Range.—Both hemispheres, from the Arctic Islands south to Australia, southern Africa, and Peru.

Breeding range.—The rarest of the three jægers is probably the pomarine jæger, which breeds in North America from North Somerset Island at Fury Point (Ross) and Upernivik on the west coast of Greenland, latitude 73° (Hagerup), south to the northern coast

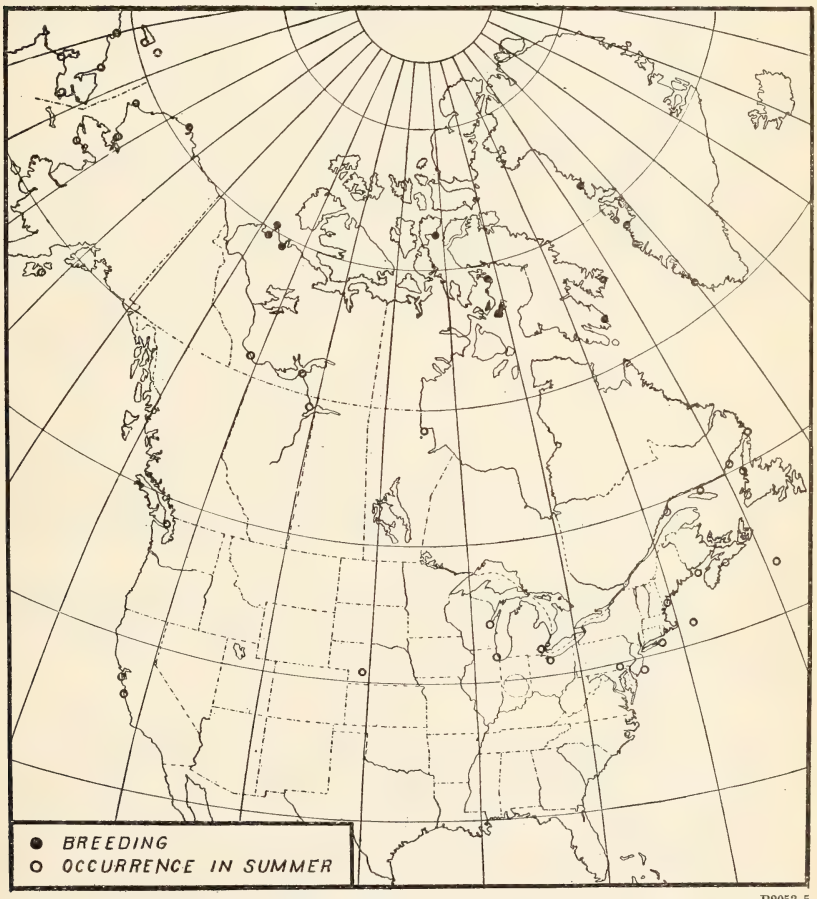


FIG. 2.—Pomarine jæger (*Stercorarius pomarinus*).

of Alaska, at Cape Lisburne (eggs in National Museum), and Point Barrow (Stone); to the coast of Mackenzie at the mouth of the Anderson River (MacFarlane), Cape Bathurst (Thayer), and Franklin Bay (MacFarlane); Igloolik (Richardson), Exeter Sound on Baffin Land (Kumlien), and on the west coast of Greenland, latitude 64° (Hagerup). It has been noted north to Melville Island (Sabine), and probably breeds there. It also breeds in the Arctic regions of

the Eastern Hemisphere, where it has been noted to latitude 83°, north of Spitzbergen, but though recorded during the breeding season at numerous places from the eastern coast of Greenland to northeastern Siberia, there are few if any actual breeding records, except on the islands off the northern coast of eastern Siberia.

Winter range.—Actual winter records are almost lacking. The species has been taken south to Cape York, in Australia, Walfisch Bay in southern Africa, and Callao Bay in Peru. It seems probable that the regular winter home lies south of the Equator and that individuals recorded with more or less certainty as having occurred in winter on the Orkneys, off the coast of Massachusetts, and on the California coast are stragglers or belated migrants.

Migration range.—During spring and fall the pomarine jæger occurs as a migrant off both coasts of the United States. It is not rare at either season, but is much more common in fall, when it continues passing the coast of Massachusetts and Long Island Sound until November. As is the case with many other water birds, this species is fairly common south to the eastern end of Long Island, then as the coast turns westward, the birds continue southward out to sea and are unknown along the coast of the rest of North America or anywhere on the eastern coast of South America. Stragglers have twice been taken on the coast of New Jersey at Long Beach (Scott) and Andalusia (Vansciver). On the California coast the species is a rare migrant in spring and is common, at least near Monterey, from August to October, but it is not recorded along the coast between California and Peru.

In the interior the pomarine jæger is rare, but is more than a casual visitor to the lakes of Mackenzie. It was taken near Fremont, Nebr., in May, 1873 (Aughey), and at North Platte, Nebr., November 11, 1895 (Barnum).

Spring migration.—Dates of spring migration in the United States are almost lacking. The birds are said to pass the New England coast in May, but if so, the migration must be quite rapid, for the first arrived June 10, 1823, at Igloolik (Richardson), 2,000 miles north of Massachusetts. Dates of arrival at Point Barrow, Alaska, latitude 71°, are June 24, 1882, June 6, 1883 (Murdoch), and May 23, 1898 (Stone). A straggler was taken near Detroit, Mich., May 30, 1879 (Collins).

Eggs have been recorded at Cape Bathurst, Mackenzie, June 20, 1901 (Thayer); Cape Lisburne, Alaska, June 10, 1885 (Thayer); and Point Barrow, Alaska, June 24, 1898 (Stone).

Fall migration.—The return movement begins so early that before the young are out of the nest fall migrants are appearing many hundred miles south of the breeding grounds. These early birds must, of course, be those which did not nest or which lost their eggs

or young. Some dates of fall arrival are: Peach Bottom, Lancaster County, Pa., July 4, 1869 (Barnard); near Lynn, Mass., July 5, 1889 (Tufts); Little Gull Island, Long Island, N. Y., common August 6-16, 1888 (Dutcher); Bonne Bay, Newfoundland, August 16, 1877 (Kumlien); mouth of the Churchill River, Keewatin, several July 21, 1900 (Preble); Cape Blossom, Alaska, July 1, 1899 (Grinnell); Nome, Alaska, July 14, 1908 (Thayer); Kodiak, Alaska, August 15, 1888 (Ridgway); Monterey, Cal., August 1, 1892, July 31, 1894 (Loomis); Callao, Peru, November 17, 1883 (Macfarlane).

Some late fall records are: Montauk, N. Y., October 30, 1889 (Scott); Ossining, N. Y., October 18, 1877 (Fisher); Block Island, R. I., October 11, 1895 (Howe and Sturtevant); Long Beach, N. J., December, 1876 (Scott); near Halifax, Nova Scotia, about October 4, 1869 (Gilpin); Chicago, Ill., October 9, 1876 (Nelson); Fort Simpson, Mackenzie, October 16, 1860 (Ross); Point Barrow, Alaska, September 20, 1897 (Stone); Cape Irkaipij, northeastern Siberia, September 5, 1911 (Thayer and Bangs); near Victoria, British Columbia, October 22, 1898 (Kermode); Monterey, Cal., November 11, 1896 (Loomis); and the Galapagos, December 15, 1897 (Rothschild and Hartert).

PARASITIC JÆGER. *Stercorarius parasiticus* (LINNÆUS).

Range.—Both hemispheres, from the Arctic islands south to Australia, southern Africa, and Brazil.

Breeding range.—The parasitic jæger breeds on many of the Arctic islands of the Eastern Hemisphere and south to Scotland, and from Point Barrow, Banks Land (Bay of Mercy), Melville Island (Winter Harbor), and Godhavn, Greenland, south to Kamchatka, (Bering Island) Near Islands (Agattu), Aleutians (Kiska and Amchitka), Kodiak Island, and Glacier Bay, Alaska, Great Slave Lake (Stone Island and the eastern end of the lake), to near York Factory, Keewatin, and to Hudson Strait.

Winter range.—Winter records for the parasitic jæger in the Western Hemisphere are so rare as to suggest the probability that the species does not regularly occur at that season along the coasts of either North or South America. It was taken both December 4 and June 20 at Rio Janeiro, Brazil (Saunders), but of course the June bird was an accidental straggler, unless this is really a mistake in labeling for January. A summer bird also was taken on Barbados July 10, 1888 (Feilden). These three seem to be the only certain records at any season of the year for South America and the West Indies, and there seems to be no record at any time of the year for Central America and Mexico. There are several December records for the United States, but these seem to represent late fall migrants rather than wintering birds. In the Eastern Hemisphere the species winters

south along the coasts of Europe and Africa to the Cape of Good Hope, the Persian Gulf, Australia, and New Zealand.

Migration range.—In fall this jæger appears not rarely on both coasts of the United States from Maine to Florida and from Washington to southern California. It also occurs along the coast of British Columbia and the Maritime Provinces. It has been noted not rarely on the Great Lakes and several times as a wanderer in Colorado, Kansas, Nebraska, Iowa, and Missouri. Almost without

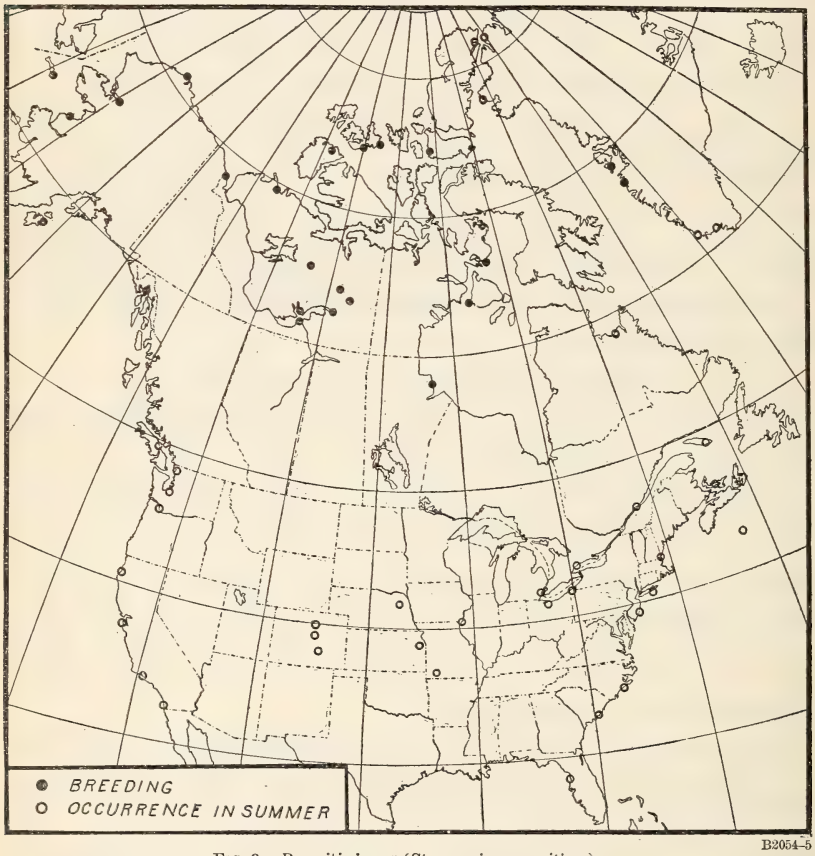


FIG. 3.—Parasitic jæger (*Stercorarius parasiticus*).

exception all these records are in fall. There are hardly half a dozen spring records for both coasts, indicating that these birds are stragglers from the regular migration routes. Those seen October 26–28, 1912, off the coast of southern Brazil (Murphy) were undoubtedly migrants on their way to a more eastern and southern winter home.

Spring migration.—As just remarked, records in spring are not common south of the breeding range. The parasitic jæger arrived at Bay of Mercy on Banks Land, May 31, 1852 (Armstrong), and was

noted at Dealy Island, June 16, 1853 (M'Dougall), Fort Conger, latitude 81° 40′, June 18 and 20, 1883 (Greeley), and Thank God Harbor, about the same latitude, June 14, 1872 (Davis). The species certainly did not breed that season at Fort Conger, and probably did not at Thank God Harbor. Its regular breeding range does not seem to extend north of about latitude 75°. At Point Barrow, Alaska, the first arrived May 31, 1882, and May 29, 1883 (Murdoch), and June 1, 1898 (Stone); at Kigulik Mountains, Alaska, May 21, 1905 (Anthony); at St. Michael, Alaska, May 7, 1851 (Adams); and at Bering Island, Kamchatka, May 4, 1883 (Stejneger). Some other spring records, probably accidental, are: Stone Harbor, N. J., May 27, 1901 (Voelker); Tacoma, Wash., May 17, 1897 (Bowles); and Renovo, Pa., June 18, 1911 (Pierce).

Eggs have been secured on Bering Island, May 29, 1882 (Stejneger); Kodiak Island, Alaska, June 19, 1911 (Thayer); Kowak River, Alaska, June 20, 1899 (Grinnell); mouth of the Mackenzie River, June 27, 1894 (Russell); and on the coast of central and southern Greenland from June 4 to July 25 (Hagerup).

Fall migration.—Birds common near Cape Eskimo, Keewatin, August 4–13, 1900 (Preble), were probably in fall migration, while by this date they had already appeared much farther south at Little Gull Island, N. Y., August 6–16, 1888 (Dutcher), and at Monterey, Cal., August 1, 1892, and August 4, 1894 (Loomis). Some other fall dates are: Mingan Island, Quebec, July 20, 1881 (Brewster); Orient, Long Island, N. Y., September 13, 1907, September 12, 1909 (Latham); Sodus Bay, N. Y., August 28, 1910 (Guelf); Ottawa, Ontario, September 4, 1909 (Eifrig); Charlestown Beach, R. I., September 2, 1897 (Hathaway); Cambridge, Mass., August 30, 1901 (Eustis); Seabrook, N. H., September 2, 1897 (Allen); near Sable Island, Nova Scotia, September 9, 1878 (Allen); Comox, British Columbia, September 2, 1903 (Brooks); and Tacoma, Wash., September 17, 1896 (Bowles).

Some dates of casual or accidental occurrence in the interior are: Billings, Mo., August, 1905 (Widmann); Keokuk, Iowa, October 6, 1896 (Praeger); Eagle Lake, near Britt, Iowa, September 20, 1905 (Anderson); near Lincoln, Nebr., September 13, 1898 (Eiche); near Lawrence, Kans., October 10, 1898 (Snow); Boulder, Colo., December (Ridgway); Denver, Colo., fall of 1889 (Smith); Pueblo, Colo., fall of 1894 (Lowe). Around the Great Lakes the species has been seen at Sandusky Bay, Ohio, October 6, 1895, and September 13, 1899 (Moseley); Detroit River, Mich., November 27, 1903 (Barrows); near Dunnville, Ontario, October 16, 1886 (McIlwraith); Erie, Pa., October 15, 1874 (Sennett); North Hamlin, N. Y., November 16, 1894 (Guelf); Toronto, Ontario, June 20, 1891, and October 20, 1894 (Fleming).

The last were noted at Point Barrow, Alaska, August 27, 1882 (Murdoch), and September 9, 1897 (Stone); Port Providence, Plover Bay, Siberia, September 12, 1880 (Bean); St. Michael, Alaska, September 16, 1899 (Bishop); St. George Island, Alaska, October 18, 1913 (Hanna); Wellington Channel, latitude 75°, September 2, 1852 (McCormick); Fort Simpson, Mackenzie, October 16, 1860 (Ross); North Hamlin, N. Y., November 16, 1894 (Guelf); Comox, British Columbia, November 8, 1903 (Brooks); Bellingham Bay, Wash., October 28, 1893 (Edson); Hyperion, Los Angeles County, Cal., December 18, 1911 (Willett); San Diego, Cal., December 16, 1884 (Henshaw); Charleston, S. C., occasional in November and never seen later (Wayne)

LONG-TAILED JÆGER. *Stercorarius longicaudus* VIEILLOT.

Range.—Arctic regions of both hemispheres; south in winter to Gibraltar and Japan.

Breeding range.—Since the long-tailed jæger seems to be confined in winter to the Eastern Hemisphere and finds its principal summer home on the Arctic islands north of Europe and Asia, it is natural that it should be most common during the latter season in those parts of the Western Hemisphere which are nearest these main breeding grounds. It is an abundant breeder in northern Greenland on both coasts south to Scoresby Sound on the east and Disco Bay on the west; it is equally common on the neighboring Ellesmere Island from Cape Union on the north (Feilden) to King Oscar Land on the southwest (Sverdrup). On the western side of North America it ranges east from Siberia, breeding in Kotzebue and Norton Sounds, south to St. Michael (Nelson) and east along the Arctic coast to Franklin Bay (MacFarlane). It nested inland on the tundra near Fort Anderson, and eggs were sent to the United States National Museum, claimed to have been taken as far inland as La Pierre House, Yukon, and are in the Thayer Museum from the Caribou Hills, Mackenzie. Between these two breeding areas in North America lies a district stretching across 35 degrees of longitude, in which the species is not yet known to occur during summer.

Winter range.—It seems probable that the long-tailed jæger does not regularly winter anywhere in the Western Hemisphere. There are only two records during the winter season (from November to May), and if not mistakes in identification they must represent accidental occurrences. The winter home is in the Eastern Hemisphere, south to Gibraltar on the Atlantic side and to Japan on the Pacific.

Spring migration.—The first birds of this species arrived at St. Michael, Alaska, May 16, 1881 (Nelson); Nulato, Alaska, May 15, 1868 (specimen in U. S. National Museum); Kowak River, Alaska, May 22, 1899 (Grinnell); and at Point Barrow, Alaska, May 30, 1883

(Murdoch). On Ellesmere Island the first was noted at Cape Sabine, May 23, 1884 (Greeley); Fort Conger, June 3, 1882, and June 4, 1883 (Greeley); and at Cape Union, June 6, 1876 (Feilden).

The species is practically unknown in spring in North America south of latitude 60°. A few are reported to have visited Cumberland Gulf in June, 1878, but did not breed and soon disappeared. Two individuals are recorded as having been seen May 6, 1894, 80

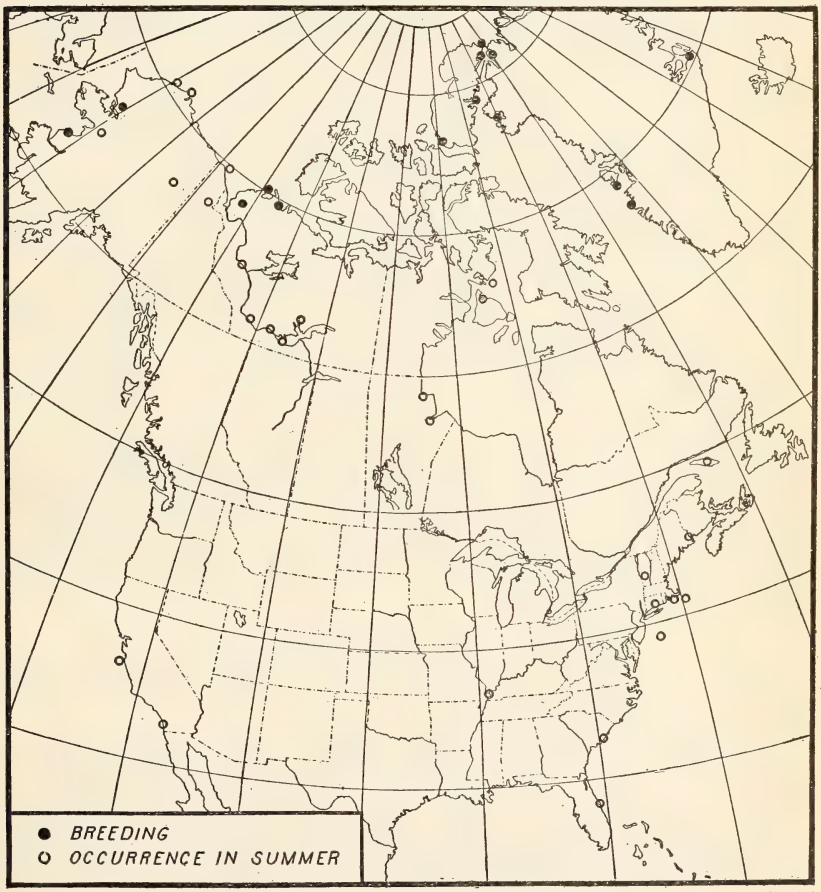


FIG. 4.—Long-tailed jæger (*Stercorarius longicaudus*). B2055-5

miles offshore from Barnegat, N. J. (Chapman); these birds, if correctly identified, were 2,000 miles away from their usual habitat at that season.

Eggs were taken at Waigat Strait, near Godhavn, Greenland, June 1, 1878 (Kumlien) and also as late as July 21, 1860, near this locality (specimens in the U. S. National Museum); Baillie Island, Mackenzie, July 12, 1901 (Bodfish); Caribou Hills, Mackenzie, June 21, 1898 (Thayer); tundra east of Fort Anderson, Mackenzie, in 1865, from

June 28 to July 30, and in 1863 as early as June 26 (MacFarlane); St. Michael, Alaska, June 16, 1880 (Nelson); and at the mouth of the Kowak River, Alaska, June 17, 1899 (Grinnell).

Fall migration.—The regular disappearance of the long-tailed jæger from its breeding grounds takes place in August and September. The last was noted at Fort Conger, August 30, 1882 (Greeley), and at Point Barrow, August 12, 1883 (Murdoch). A few individuals pass south along both coasts of North America before they cross the ocean to their winter homes. On the Atlantic side they have been noted on Anticosti Island, in August, 1900 (Schmitt); West Castleton, Vt., about September 7, 1877 (Howe); Woods Hole, Mass., August 12, 1888, September 10–22, 1906, and October 13, 1894 (Edwards); on Georges Bank, off Massachusetts, not rare in fall (Collins); Monomoy Island, Mass., September 29, 1885 (Cahoon); Wallingford, Conn., August 30, 1873 (Merriam); once on Long Island, N. Y., in fall (Lawrence); and once at Cape Canaveral, Fla. (Cory). The Pacific slope records are: Okanogan Landing, British Columbia, August 30, 1905, and September 18, 1911 (Brooks); Chilliwack, British Columbia, August 23 and September 7, 1889 (Brooks); near Monterey, Cal., August 23, 1894 (Loomis); and Pacific Beach, Cal., September 19, 1904 (Bishop).

The species has occurred casually in the interior at San Sault Rapid, Mackenzie, June 19, 1904 (Preble); near Winnipeg, Manitoba, September, 1896 (Seton), and October 8, 1902 (Atkinson); Southampton Island, Keewatin, August 17, 1821 (Saunders); near Cairo, Ill., November, 1876 (Ridgway); and at Lone Tree, near Iowa City, Iowa, June 15, 1907 (Anderson).

IVORY GULL. *Pagophila alba* (GUNNERUS).

Range.—Arctic seas, wintering in high latitudes in the Eastern Hemisphere south to France.

Breeding range.—The principal summer home of the ivory gull includes the Arctic islands of the Eastern Hemisphere. Here it is abundant, in many places outnumbering all other gulls combined, and has been noted north to latitude 85°. It is abundant also as a breeder in the extreme northwestern part of Greenland, from Thank God Harbor (Bessels) to Rensselaer Bay (Kane), throughout Ellesmere Island, and south to the northern part of Baffin Land at Port Bowen (Parry). To the westward it is much less common but has been found breeding west to Winter Harbor (Parry) and to the northeastern part of Prince Patrick Island (M'Clintock).

Winter range.—In the Eastern Hemisphere the ivory gull winters just to the southward of its summer home, and ranges thence south to France. It withdraws almost entirely at this season from the Western Hemisphere, except for an occasional bird that remains near

the south end of Greenland, or that wanders to the eastern coast of Canada.

Spring migration.—The first ivory gull arrived at Winter Harbor, May 24, 1820 (Parry), and on the northern coast of Prince Patrick Island, June 12, 1853 (M'Clintock). One appeared at Peterman Fiord, near the northeast point of Ellesmere Island, May 28, 1876 (Feilden). It appears to be not rare in migration at Point Barrow, Alaska, where

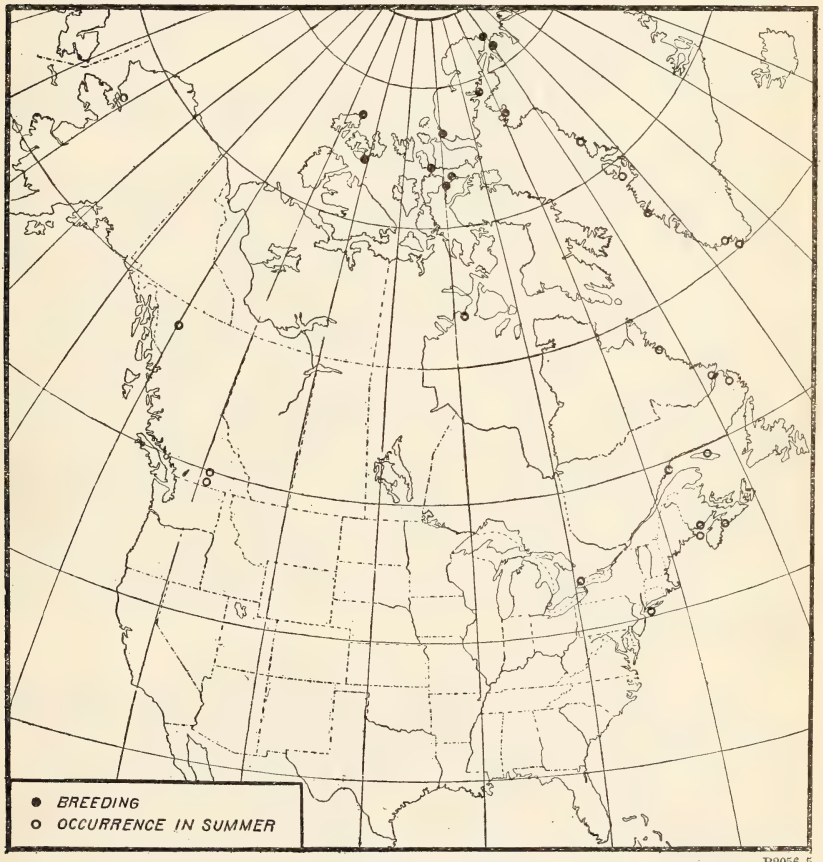


FIG. 5.—Ivory gull (*Pagophila alba*).

it was noted May 22, 1882 (Murdoch), and June 2, 1898 (Stone). Stragglers have been recorded from Godbout, Quebec, April, 1877, and March 7, 1906 (Comeau), and Sandwich Bay, Labrador, June 12, 1897 (Dawson), while one of the few records for the Pribilof Islands, Alaska, is that of a specimen taken on St. Paul Island in the early spring of 1895 (Prentiss).

The earliest eggs were found June 21, 1853, on Prince Patrick Island (M'Clintock), and the nesting season is so extended that eggs

have been secured the first week in August on both Spitzbergen (Bendire) and Franz Josef Land (Johnson).

Fall migration.—In 1850 the last ivory gull was seen near Wellington Channel, September 15 (Kane). Two years later none were seen there after September 5 (McCormick), while the last had been noted at Boothia Felix, September 21, 1829 (Ross). Near the northern limit of its range, at Lincoln Bay, Ellesmere Island, the last disappeared September 1, 1875 (Feilden), but 10 degrees farther south, at Point Barrow, Alaska, the species was seen until October 10, 1882 (Murdoch), and to September 25, 1897 (Stone). A few were still present November 9, 1912, in Bering Strait, between East Cape and the Diomede Islands (Thayer and Bangs), and on Bering Island, December 2, 1875 (specimen in U. S. National Museum).

Individuals wander south along the Atlantic Coast of North America and a few have been captured at Okak, Labrador (Weiz); Rigolet, Labrador (Dawson); Anticosti Island, October, 1902 (Schmitt); Godbout, Quebec, December 9, 1895, and January 5, 1908 (Comeau); Halifax, Nova Scotia (Jones); St. John, New Brunswick, November, 1880 (Brewster); Grand Manan, New Brunswick (Boardman); Penobscot Bay, Me., December, 1894 (specimen in U. S. National Museum); Lake Ontario (McIlwraith); Monomoy Island, Mass., December 1, 1886 (Allen); and Sayville, Long Island, N. Y., January 5, 1893 (Dutcher). The species has been noted once on the Kowak River, Alaska (McLenegan), once on St. George Island, Alaska (specimen in U. S. National Museum), and three times in British Columbia: Dease Lake, September, 1889 (Kermode); Penticton, October, 1897 (Brooks); and Okanogan Lake, November, 1897 (Kermode).

KITTIWAKE. *Rissa tridactyla tridactyla* (LINNÆUS).

Range.—Arctic America, east of the Mackenzie; Arctic Europe and western Siberia; south to northern Africa, the Canaries, Bermuda, and New Jersey; casual in the interior of eastern North America.

Breeding range.—The kittiwake breeds as far north as it can find solid land on which to put its nest, and it has been noted over the ice packs even to latitude 84° 52′ (Sverdrup). It is circumpolar and almost everywhere that observations have been made on the Arctic islands, this species has been recorded as nesting abundantly. In the Western Hemisphere it was found breeding north to Thank God Harbor, Greenland (Bessels); Cape Union, Ellesmere Island (Feilden); north of Wellington Channel, latitude 77° (Belcher); Winter Harbor, Melville Island (Parry); Point Barrow (Stone); and the whole length of the coast of northwestern Alaska north of Bering Strait and of northeastern Siberia.

The above represents the range of the species as a whole. The dividing line between the eastern (typical) subspecies *tridactyla* and

the western *pollicaris* has not yet been determined. It is known that the western form extends east to Point Barrow, but since Murdoch did not observe the bird there, and Seale did not see it east of Icy Cape, it is probable that it is rare at Point Barrow, and that this marks about the limit of the eastern extension of its range. If many nested east of Point Barrow, then the birds would probably be common there in fall migration, since they are strictly confined to the seacoast. East of Point Barrow for 30 degrees of longitude there are no records of kittiwakes of any form nor was one recorded by any of the explorers who visited Banks Land and Prince Patrick Island. Though seen by Richardson at Franklin Bay, in 1826, it was not included in the enormous collections made by MacFarlane in this same region 40 years later; showing that if it occurs there at all at present it must be very rare. The above statements seem to warrant the belief that the western subspecies *pollicaris* is restricted to the region west of Point Barrow, and that all the birds on the Arctic islands of North America belong to the eastern subspecies *tridactyla*.

The subspecies *tridactyla* breeds south to the mainland of northern Asia, to northwestern France, the southern end of Greenland (Hagerup), Magdalen Islands (Brewster), Godbout, Quebec (Comeau), Cape Fullerton (Low), and Franklin Bay, Mackenzie (Richardson).

Winter range.—The birds breeding north of Europe and eastern Siberia range southward in winter to the shores of the Caspian Sea, to the southern coast of the Mediterranean, and to the Canaries (Saunders). The breeding birds of the Western Hemisphere desert the Arctic islands during winter, but are common at this season among the outer islands on the Maine coast (Knight), at Grand Manan, New Brunswick (Herrick), and at least as far north as Halifax, Nova Scotia (Jones). The species remains in the Gulf of St. Lawrence around Prince Edward Island as long as it can find open water, and undoubtedly it often stays all winter.

The whole New England coast is visited during winter, as well as Long Island Sound and the New Jersey coast south to Long Branch and Atlantic City (Stone). The kittiwake wanders still farther south and was noted February 4, 1913, off the coast of Maryland, latitude 37° 46′ N., longitude 74° 10′ W. It is not rare on Bermuda, having been seen from January 5 to April 4 (Reid), and in January, 1901, all the way on the ocean from New York City to latitude 25° 51′ N., longitude 37° 43′ W., several hundred miles southeast of Bermuda.

Migration range.—The kittiwake is normally a salt-water species, but it ascends the St. Lawrence regularly to Quebec and rarely to Montreal (Dionne). It has wandered inland to Enosburg Falls, Vt., November 12, 1906 (Woodworth); Oak Orchard, Orleans County,

N. Y., April 10, 1881 (Bruce); Auburn, N. Y., January 4, 1854 (Hopkins); Oneida Lake, N. Y., November 9, 1890 (Bagg); Lancaster, Pa., once, winter (Warren); Erie, Pa., October 17, 1900 (Todd); Toronto, Ontario, one, October 31, 1899, and several in November of that year (Fleming); Chicago, Ill., December 9, 1896 (Woodruff); Neebish Island, Mich., once, taken in fall (Boies)—in fact, it is probable that

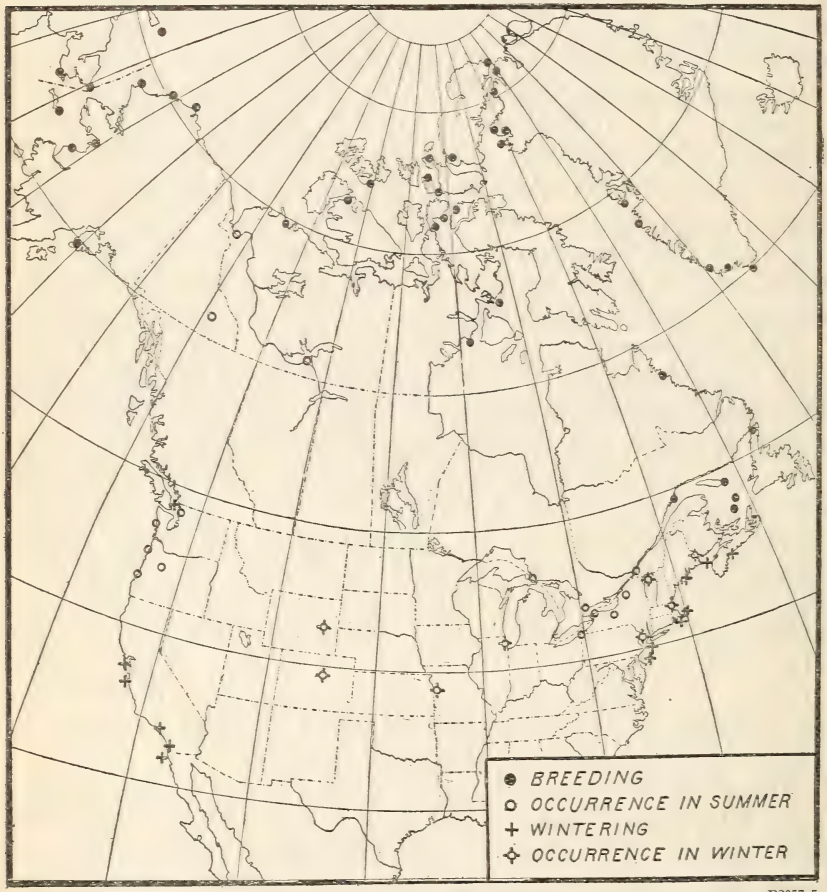


FIG. 6.—Kittiwake (*Rissa tridactyla*). Typical subspecies (*tridactyla*) ranges west to the Rocky Mountains; Pacific subspecies (*pollicaris*) is found on the western and northwestern coasts.

each fall and winter finds some individuals around the Great Lakes; near Kansas City, Mo., once, in 1897 (Widmann); Arctic Red River, Mackenzie, October 5, 1910 (Thayer); Fort Simpson, Mackenzie, May 15, 1860 (Ross); Douglas, Wyo., November 18, 1898 (Jesurun); and Boulder, Colo., one in December (Ridgway).

Spring migration.—Just north of the winter home, the first kittiwakes arrived at North River, Prince Edward Island, on the average,

March 26, earliest March 15, 1891; Godbout, Quebec, average April 6, earliest March 25, 1884, and the mouth of Great Whale River, Quebec, March 26, 1899 (Eifrig). With such an early start the northward progress is not fast and it is June before the first arrive in the northern part of the range—Cape Farewell, Greenland, June 7, 1821 (Parry); Cape York, Greenland, June 10, 1825 (Parry); Fort Conger, Ellesmere Island, June 21, 1885 (Greeley); Prince of Wales Strait, June 7, 1851 (Armstrong); and north of Wellington Channel, latitude 77°, June 19, 1853 (Belcher). In 1887 the first arrived at Ivigtut, Greenland, on March 26 (Hagerup).

The southern part of the winter home is deserted early in the season and the last bird is reported to remain on Long Island to March 17 (Dutcher); New Haven, Conn., April 14 (Merriam); Newport, R. I., March 23, 1900 (Mearns), and Gloucester, Mass., March 13, 1890 (White). A few remain on the coast of Maine all summer and have been reported at White Horse Ledge, in Jericho Bay, July 11, 1903; and near Portland, July 14, 1907 (Norton). The species was noted June 5–11, 1894, on Sable Island, Nova Scotia (Dwight). In none of these cases did these summer birds show signs of breeding, and they were undoubtedly barren.

Eggs of the kittiwake were taken on the Bird Rocks near the Magdalen Islands, June 10, 1877 (specimens in U. S. National Museum), and July 10, 1855, on the west coast of Greenland, latitude 76° (Kane). Exceptionally early eggs were found at Ivigtut, Greenland, June 1, 1887 (Hagerup).

Fall migration.—A few migrants appear in southern Maine early in fall—Piper Pond, August 4, 1901 (Ritchie), and Islesboro, August 14, 1907 (Knight)—but these may be nonbreeding birds that have spent the summer not far to the northward. The main body of the migrants does not appear until much later. Many years' observations on the Massachusetts coast give November 6 as the average date of arrival, earliest October 27, 1890. The earliest date on Long Island is November 4 (Braislin).

Ice drives the kittiwake from the Arctic in early fall and in 1852 the last was seen at Wellington Channel, September 2 (McCormick), and September 1, 1876, at Lincoln Bay, Ellesmere Island, latitude 80° (Feilden).

PACIFIC KITTIWAKE. *Rissa tridactyla pollicaris* RIDGWAY.

Range.—Coasts of the North Pacific, Bering Sea, and the adjacent Arctic Ocean.

Breeding range.—The Pacific kittiwake replaces the eastern subspecies, *tridactyla*, in the North Pacific and neighboring parts of the Arctic Ocean. It breeds north to Herald Island (Nelson), Cape Lisburne (Stone), Icy Cape (Seale), and Point Barrow (Stone), though it

is not common east of Cape Lisburne, and its presence at Point Barrow may be more or less casual. It breeds south to Seldovia, Alaska (Chapman), and the Shumagin Islands, Alaska (Dall), while a specimen taken at Yakutat, Alaska, June 21, 1899, and now in the U. S. National Museum, indicates that the subspecies may breed in that locality.

It is abundant on the eastern Aleutians, but much less common west of Unimak Pass, though it was not rare on Kiska Island, June 17–21, 1911 (Wetmore), and occurs on the Near Islands (Turner). On the Asiatic side it is abundant on the Commander Islands (Stejneger) and breeds south to the Kurils (Saunders). It breeds on the Arctic coast of Siberia west to Koliutschin Islands, and ranges west to Chaun Bay (Thayer and Bangs).

Winter range.—The Pacific kittiwake is commonly believed to winter in the Aleutians, but there seems to be no certain record of its occurrence there at that season. It does winter at Sitka, Alaska (Willett), and on the coast of southern British Columbia—Discovery Island, January, 1896 (Kermode)—and thence south along the coast regularly to central California, and occasionally to southern California and northern Lower California: Paso Robles, March 31, 1913, (Thompson); Playa del Ray, January 9, 1906, and December 30, 1911 (Willett); Alamitos Bay, April 14, 1907 (Linton); San Diego, February 26, 1895 (Anthony); San Geronimo Island, Lower California, March 15, 1897 (Kaeding). Kittiwakes are probably more common during winter along the coasts of northern California, Oregon, and Washington than is indicated by the scant half dozen records for this long coast.

On the Asiatic side there seem to be no winter records farther south than the southern limit of the breeding range on the Kurile Islands, indicating that these most southerly breeding kittiwakes are nonmigratory. The more northern breeders retire so far to the southward that they do not winter on the Commander Islands (Stejneger).

Spring migration.—The first kittiwakes arrived at St. Paul Island, Pribilofs, April 20, 1909 (Island log), and April 24, 1911 (Hanna); at St. Michael, Alaska, May 6, 1851 (Adams); and Point Barrow, Alaska, June 2, 1898 (Stone). The first were noted in 1883 on Bering Island about April 1 (Stejneger).

Eggs were taken at Walrus Island in Bristol Bay, Alaska, June 8, 1889, and at Cape Lisburne, June 10, 1885 (specimens in U. S. National Museum). The nesting season is much prolonged, for eggs were obtained at Seldovia as late as July 24, 1903 (Chapman), and on St. Paul Island to August 2, 1890 (specimens in U. S. National Museum).

Kittiwakes were last seen at Point Pinos, Cal., April 25, 1907 (Beck); and they were still present at Port Townsend, Wash., May 19, 1911

(Wetmore), and at Campbell Island, British Columbia, May 24, 1911 (Wetmore).

Fall migration.—Throughout the entire summer kittiwakes in adult plumage are present at Sitka, Alaska, in large numbers, but they do not nest (Willett). Several hundred were seen at Glacier Bay, Alaska, July 13, 1907 (Grinnell), including some immature birds which undoubtedly had been raised farther west or northwest and were already on their fall migration. The first were seen at Queen Charlotte Islands, British Columbia, in September, 1895 (Fannin), but it is not until November that the species reaches California. The average date of arrival at Point Pinos is November 14, earliest November 6, 1907 (Beck).

The last one noted at Point Barrow, Alaska, was on August 31, 1897 (Stone); Nome, Alaska, September 10, 1910 (Thayer); Plover Bay, Siberia, September 17, 1880 (Bean); Unalaska Island, October 5–6, 1899 (Bishop); St. Paul Island, October 12, 1914 (Hanna); and on Koliutschin Island, Siberia, September 22. 1912 (Thayer and Bangs).

RED-LEGGED KITTIWAKE. *Rissa brevirostris* (BRUCH).

Range. Coasts and islands of Bering Sea.

The red-legged kittiwake breeds abundantly on the Pribilof Islands (Coinde), the Near Islands (Turner), and also on the Com-

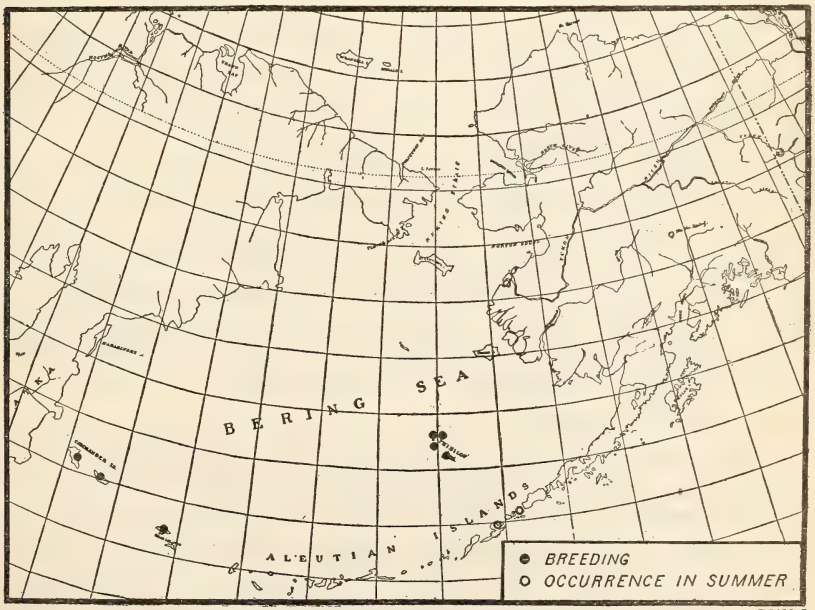


FIG. 7.—Red-legged kittiwake (*Rissa brevirostris*).

mander Islands (Stejneger). It was common on St. Paul Island, Pribilofs, April 30, 1911 (Hahn), and eggs have been taken on St.

George Island, Pribilofs, June 25, 1873 (specimens in U. S. National Museum). It also breeds so late that young were still in the nest on St. George Island, August 31, 1913 (Hanna). In fall the species was noted at Unimak Pass (Seale), and one bird was seen October 5, 1899, on the north side of Unalaska at Dutch Harbor (Bishop). The last was noted on St. George Island November 11, 1913 (Hanna).

There is apparently no winter record for the species. Turner says that it breeds on the Near Islands but does not winter there, while Stejneger records its return to the Commander Islands about the first of April.

A straggler was taken at Forty-Mile, Yukon, October 12, 1899 (Grinnell).

GLAUCOUS GULL. *Larus hyperboreus* GUNNERUS.

Range.—Arctic regions, south to California, the Great Lakes, Long Island (New York), the Mediterranean, Black and Caspian Seas, and Japan.

Breeding range.—The glaucous gull, or burgomaster, as it is commonly called by sailors, is a truly circumpolar species; wherever man has collected in the Arctic he has found this bird. It breeds on all the Arctic islands of the Eastern Hemisphere, and in the Western Hemisphere breeds north to Thank God Harbor, Greenland (Hall)—occurs north to Cape Union (Feilden), but not known to breed—King Oscar Land (Sverdrup), Prince Patrick Island (M'Clintock), Point Barrow, Alaska (Murdock), and the Chukchi Peninsula (Schalow).

It breeds south along the Labrador coast to Hopedale (Townsend and Allen) and most likely even farther south, for it breeds not rarely in Newfoundland south to Bay of Islands (Arnold). It is quite common on the east coast of Hudson Bay south to the mouth of Great Whale River and even in James Bay (Macoun), while it seems to be absent in summer from the west coast south of Fullerton (Low). It breeds along the Arctic coast from Cambridge Bay (Collinson), to Franklin Bay (MacFarlane) and Herschel Island (Thayer), and is a common breeder on the northern shores of Bering Sea south to the mouth of the Yukon (Nelson), to the Kuskoquim (Hinckley), to the Pribilofs (specimen in U. S. National Museum), and to Indian Point, Siberia (Thayer).

Winter range.—The breeding and wintering ranges of the glaucous gull overlap, since the species winters as far north as Ivigtut, Greenland (Hagerup), and Cape Mercy, Baffin Land (Kumlien), and thence south along the Atlantic coast regularly to Long Island (Peavey), rarely to the Great Lakes, and on the Pacific coast from the Aleutians south to Monterey, Cal. (Breninger). In the Eastern Hemisphere it winters south to the Mediterranean, Black, and Caspian Seas and to Japan. The few individuals that inhabit the shores of the

Pacific Ocean during the winter season apparently do not go south of California and Japan.

Migration range.—Outside of the regular winter range the species has been noted at Cape Lookout, N. C., April 3, 1897 (Coues); Bermuda, one large flock in March, 1901, and present until April 28, 1901 (Verrill); Erie, Pa., February 22, 1898 (Simpson); Ossining, N. Y., January 19, 1889 (Richardson); Buffalo, N. Y., January 29, 1895 (Savage); Millers, Ind., August 8, 1897 (Woodruff); Ottawa, Ontario, December 2, 1905 (Eifrig); Kingston, Ontario, November

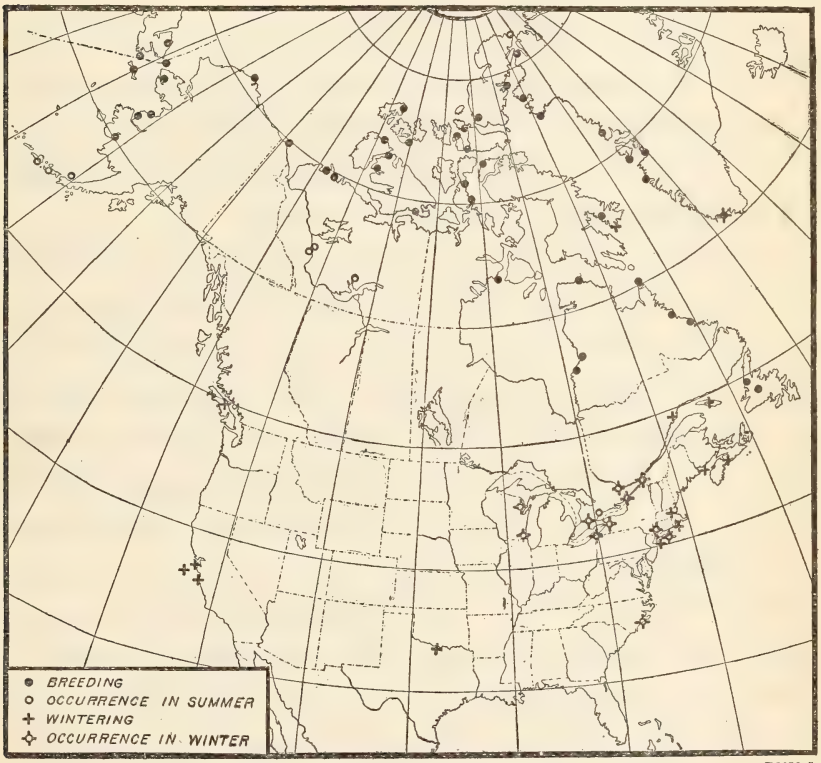


FIG. 8.—Glaucous gull (*Larus hyperboreus*).

16, 1905 (Beaupré); London, Ontario, February 1, 1906 (Saunders); Lake Ontario, common in winter, December 8 to March 25, 1889 (McIlwraith); Milwaukee, Wis., January 8, 12, and 14, 1895 (Kumlien and Hollister); Racine, Wis. (Hoy); Kelley Brook, Wis., one, December, 1890 (Schoenebeck); Red River, Clay County, Tex., December 17, 1880 (Ragsdale).

Spring migration.—The first glaucous gulls were noted at Kingwah Fiord, Baffin Land, April 20, 1878 (Kumlien), though the species had wintered on the open water not far distant. At the southern end of Greenland, where it also wintered, the numbers were augmented

by the arrival of migrants as early as March 20, 1887 (Hagerup). Toward the northern limit of the range, the date of arrival is much later: Polaris House, May 10, 1873 (Davis); Rennselaer Bay, May 22, 1854 (Kane); Fort Conger, May 14, 1882, and June 5, 1883 (Greeley); Whitsunfiord, King Oscar Land, May 27, 1901 (Sverdrup); Bay of Mercy, May 31, 1852 (Armstrong); Winter Harbor, June 3, 1820 (Parry); near Wellington Channel, latitude 76°, May 16, 1851 (Sutherland); Yukon Delta, Alaska, May 13, 1879 (Nelson); Kowak River, Alaska, May 11, 1899 (Grinnell); and Point Barrow, Alaska, May 11, 1882 (Murdoch).

Some late spring dates south of the breeding range are: Rockaway, Long Island, May 1, 1904 (Peavey); Boston, Mass, April 23, 1906 (Remick); Peaks Island, near Portland, Me., April 27, 1883 (Knight); Godbout, Quebec, April 29, 1882 (Comeau); and Monterey, Cal., May 4, 1897 (Loomis); while several were seen at Unimak Pass, Aleutian Islands, June 4, 1911, and at Unalaska Harbor five days later (Wetmore), but there were no indications of breeding.

At Kingwah Fiord, Baffin Land, the first signs of nest building were noted May 24, 1878, and the first eggs were found June 8 (Kumlien). Eggs were taken at Ivigtut, Greenland, from May 10 to June 14 (Hagerup); Beechey Island, June 21, 1853 (McCormick); Cape Sabine, June 17, 1900 (Thayer); Yukon Delta, June 4, 1879 (Nelson); Kowak River, Alaska, May 26, 1899 (Grinnell); incubated eggs, in the Kolyma Delta, Siberia, June 26, 1912 (Thayer and Bangs); eggs ready to hatch, in King Oscar Land, June 24, 1901 (Sverdrup); young in the nest, at Cape York, July 2, 1858 (M'Clintock); and young just hatched, on Hall Island, Alaska, July 14, 1899 (specimen in U. S. National Museum).

Fall migration.—Birds on Amak Island, Aleutians, July 18, 1911 (Thayer), may have been either nonbreeders that had remained through the summer or the van of the fall migrants. At Anticosti Island, only a short distance south of the breeding range, the first migrants usually appear in August (Schmitt). The southern part of the winter range is not reached until much later: Fresh Pond, Mass., November 29, 1899 (Brewster); Orient, Long Island, November 30, 1909 (Latham); Boston, Mass., December 15, 1909 (Wright); Far Rockaway, Long Island, January 1, 1891 (Howell); Comox, British Columbia, December 15, 1903 (Brooks); and Monterey, Cal., November 6, 1893 (Breninger), and December 11, 1894 (Loomis).

Long before this the ice has driven the glaucous gull from most of its northern nesting grounds; the last were seen at Cape Union, Ellesmere Island, September 1, 1875 (Feilden); Thank God Harbor, September 3, 1871 (Hall); Winter Harbor, September 6, 1819 (Parry); Wellington Channel, September 5, 1852 (McCormick); Stordalen,

King Oscar Land, September 11, 1899 (Sverdrup); Bowdoin Bay, Greenland, September 9, 1896, and October 17, 1893 (Clarke); Fort Rae, Mackenzie, September 30, 1893 (Russell); Roche Trempel'eau, Mackenzie, October 9, 1903 (Preble); Point Barrow, Alaska, November 1, 1882 (Murdoch); Kowak River, Alaska, October 13, 1898 (Grinnell); Unalaska Island, Alaska, November 12, 1904 (Thayer); St. Paul Island, Pribilofs, December 13, 1914, and February 18, 1915 (Hanna); and Diomede Islands, in Bering Strait, December 7, 1912 (Thayer and Bangs).

ICELAND GULL. *Larus leucopterus* FABER.

Range.—North Atlantic Ocean and contiguous parts of Arctic Ocean, south to the British Isles and Massachusetts.

The Iceland gull, though an Arctic species, ranges over only a small part of the Arctic regions. It occurs regularly from longitude 90° W. at Boothia Peninsula to longitude 10° W. at Jan Mayen. It is recorded as having occurred on Nova Zembla, longitude 60° E. (Smirnow). The center of its abundance is the west coast of Greenland, where it is a common breeder from the southern end at Ivigtut (Hagerup) to about latitude 70° (Schalow), though it was found at Northumberland Island, latitude 77° 30′ (Bessels), and stragglers were noted at Fort Conger, latitude 81° 40′, May 19, 1882, and June 5, 1883 (Greely), but the species does not breed there. Westward it ranges to Bellot Strait (Walker), Felix Harbor (Ross), and Cambridge Bay (Collinson). It has been taken on the east coast of Greenland north to Sabine Island, latitude 74° (Schalow), and is a not rare breeder on Jan Mayen.

Eggs were taken at Ivigtut from May 14 to June 10 (Hagerup); at Claushavn, June 20, 1878 (Kumlien); and at Christianshaab (specimens in U. S. National Museum).

This gull winters in small numbers on the southern coast of Greenland (Hagerup), and the great bulk of individuals, particularly the fully adult birds, remain at this season around northern waters from Iceland and the Faroe Islands to the British Isles, while immature birds have wandered south to Scandinavia, the Baltic Sea, and even to the Bay of Biscay.

On the American side of the Atlantic Ocean the Iceland gull comes south in winter as far as Massachusetts, Long Island, and the Great Lakes, though it is never common, and the individuals ranging so far south are principally immature birds. It has been recorded along the coast at Godbout, Quebec, February to May 1 (Comeau); Perleys Mills, Me., January 12, 1898 (Knight); near Boston, Mass., November 4, 1897 (Lothrop), December 11, 1897 (Brewster), January 15, 1894, and January 31, 1880 (Bangs), and February 11, 1894 (Jef-

fries); Rockaway Beach, Long Island, February 6, 1898 (Peavey); and Rye, N. Y., March 3, 1894 (Porter).

Inland it has been noted near Brockport, N. Y., September 10, 1899 (Bruce); Lansingburg, N. Y., November 21, 1888 (Eaton); Oswego, N. Y., December 28, 1899, (Miller); Peterboro, N. Y., Feb-

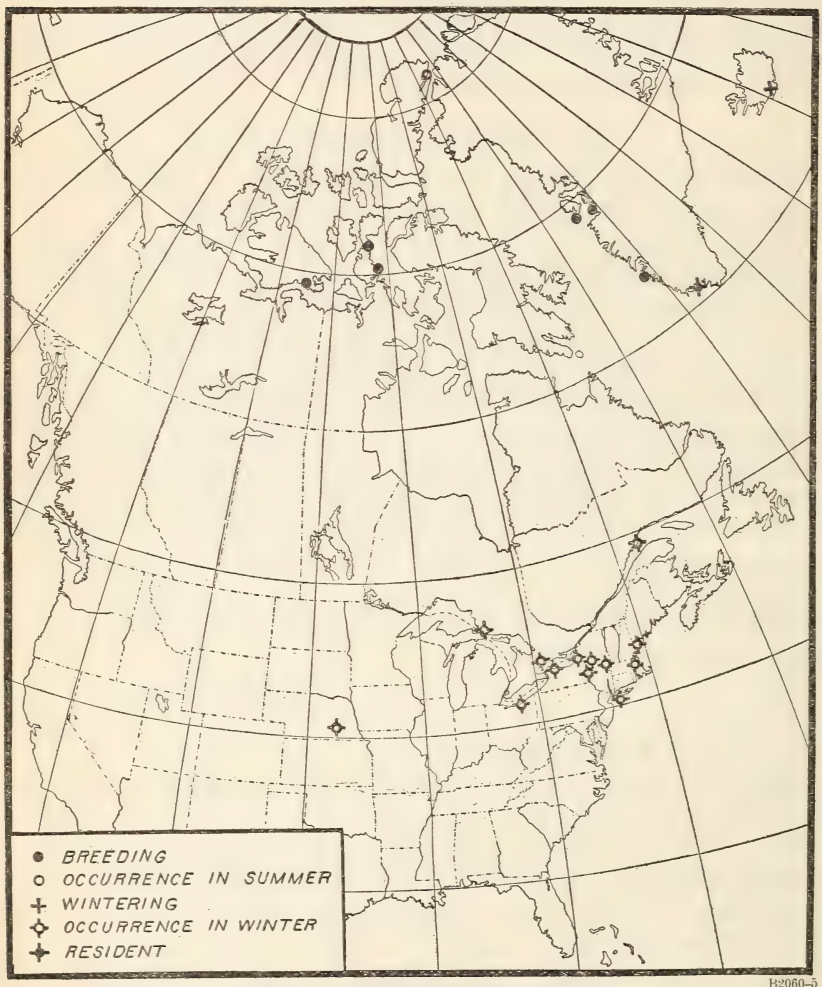


FIG. 9.—Iceland gull (*Larus leucopterus*).

ruary 1, 1884 (Lawrence); Ithaca, N. Y., March 17, 1897 (Fuertes); Rochester, N. Y., April 14, 1904 (Eaton); Lorain, Ohio, December 22, 1888 (McCormick); Toronto, Ontario, December 12, 1898 (Ames); Port Sydney, Ontario, April 6, 1898 (Fleming); Sault Ste. Marie, Mich., (Barrows); and Dorchester, Nebr., January 15, 1907 (Swenk).

GLAUCOUS-WINGED GULL. *Larus glaucescens* NAUMANN.

Range.—Coasts of the North Pacific, Bering Sea, and the adjacent Arctic Ocean, south to Lower California and Japan.

Breeding range.—The center of abundance of the glaucous-winged

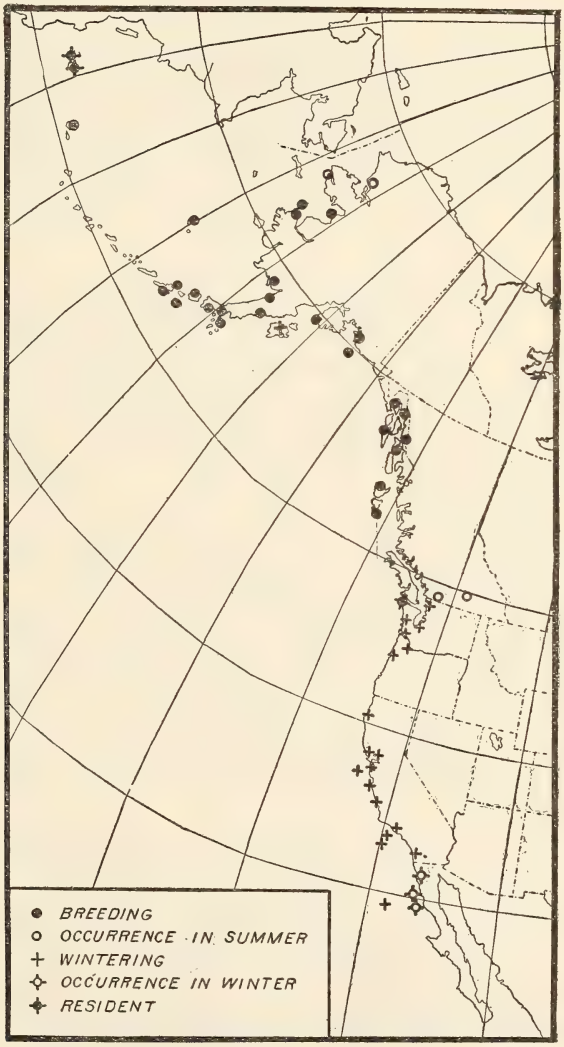


FIG. 10.—Glaucous-winged gull (*Larus glaucescens*).

gull during the breeding season is the Aleutian Islands, where it is the most abundant of gulls nesting throughout the whole chain, including the Near Islands (Turner) and the Pribilofs (Lucas). It nests also on the Commander Islands (Stejneger) and north to St. Michael and Cape Denbigh (McGregor). A single bird was seen at

Port Clarence, July 24, 1897 (Stone), another, September 6 (Bean), and one at the mouth of the Kowak River, May 11, 1899 (Grinnell). It is not probable that the species breeds anywhere north of Bering Strait. It is a common breeder on the southern coast of Alaska, the whole coast of British Columbia, and south to Destruction Island, Wash. (Jones).

Winter range.—It winters on Kodiak Island and the Pribilofs, Alaska, and probably some individuals remain at this season on the Aleutians, as they do on the Commander Islands. On the Asiatic side the species winters south to Japan, and on the American side south to Guadalupe Island, Lower California (Kaeding). It is a common winter resident along the United States coast from northern Washington to southern California.

Spring migration.—This gull was found fairly common on San Martin, Todos Santos, and San Geronimo Islands, Lower California, March 10–15, 1897 (Kaeding), and on Guadalupe Island, March 22, 1897 (Kaeding). It remained at Santa Cruz Island, Cal., until May 2, 1911 (Howell and Van Rossem), and at Monterey until May 10, 1907 (Beck). An immature bird was noted July 4, 1910, at Hyperion, Los Angeles County, Cal., but it must then have been far south of the place where hatched.

Eggs were taken June 8, 1907, off Cape Johnson, Wash. (Thayer); Carroll Island, Wash., June 19, 1908 (Jones); Mittlenatch Island, Strait of Georgia, B. C., June 18, 1896 (Dawson); Sitka, Alaska, June 16 to August 4, 1896 (Grinnell); Chico Island and Round Island in Akutan Pass, Alaska, June 2, 1872 (Dall); Walrus Island, Pribilofs, June 13, 1890 (specimens in U. S. National Museum); Bering Island, June 8, 1882 (Stejneger), Ariz Kamen, May 16, 1883 (Stejneger); Houston Stewart Channel, Queen Charlotte Islands (just hatching), July 3, 1900 (Osgood); and young, near Seldovia, Alaska, July 11, 1903 (Chapman).

Fall migration.—The first of these gulls was seen at Monterey, Cal., October 30, 1896 (Loomis), and the species was fairly common by November 12. In 1906, the first came to Monterey October 25, (Beck), and, in 1884, to Ventura, November 19 (Evermann).

Inland the species appeared at Chilliwack, British Columbia, August 26, 1889, and was last noted November 28, 1888 (Brooks), and has also been observed at Okanogan Lake, British Columbia (Brooks). Several cases are known of its following ships all the way from the California coast to Hawaii.

KUMLIEN'S GULL. *Larus kumlieni* BREWSTER.

Little is known of the distribution or migratory movements of Kumlien's gull. The type was taken June 14, 1878, on Cumberland Sound, where the species nested commonly (Kumlien). It had arrived

as soon as open water appeared and full-grown young were common there the first days of September. A large extension of the known range was made in 1900 when eggs were taken on June 15, at Weyprecht Island, latitude 79°, on the east coast of Ellesmere Island (Thayer), and on July 1 a specimen was taken a few miles farther south, at Alexander Haven (Thayer).

In winter the species comes south along the Atlantic coast as far as Long Island, near Rockaway Beach, March 8, 1898 (Braislin);

FIG. 11.—Kumlien's gull (*Larus kumlieni*).

Stamford, Conn., February 16, 1894 (Dwight); Plymouth, Mass., January 5, 1888 (Dwight); Moon Island, Boston Harbor, Mass., February 22, 1905 (Allen); Tadousac, Quebec, probably in the spring of 1901 (Dwight); near Grand Manan, New Brunswick, about January 21, 1883 (Merrill); one in the Bay of Fundy, about November 1, 1881 (Brewster); and one on Prince Edward Island, October 7, 1905 (Mac Swain). Inland, one was taken at the mouth of the Mohawk River, N. Y., January 28, 1884 (Brewster).

NELSON'S GULL. *Larus nelsoni* HENSHAW.

A single specimen of Nelson's gull, taken by Nelson at St. Michael, Alaska, June 20, 1880, served as the basis for the description of this gull. A specimen in the British Museum, taken many years previously on the coast of Alaska near Bering Strait by Captain Kellett and Lieutenant Wood, also belongs to this species. No more specimens were obtained for 17 years, until in 1897 two were taken at widely separated localities. One was secured at San Geronimo Island, Lower California, March 18, 1897 (Dwight), and one at Point Barrow, September 5, 1897 (Stone). No further specimens have been recorded in the last 18 years, though during this period active collecting has taken place at many localities along the Alaskan coast from northern British Columbia to Point Barrow.

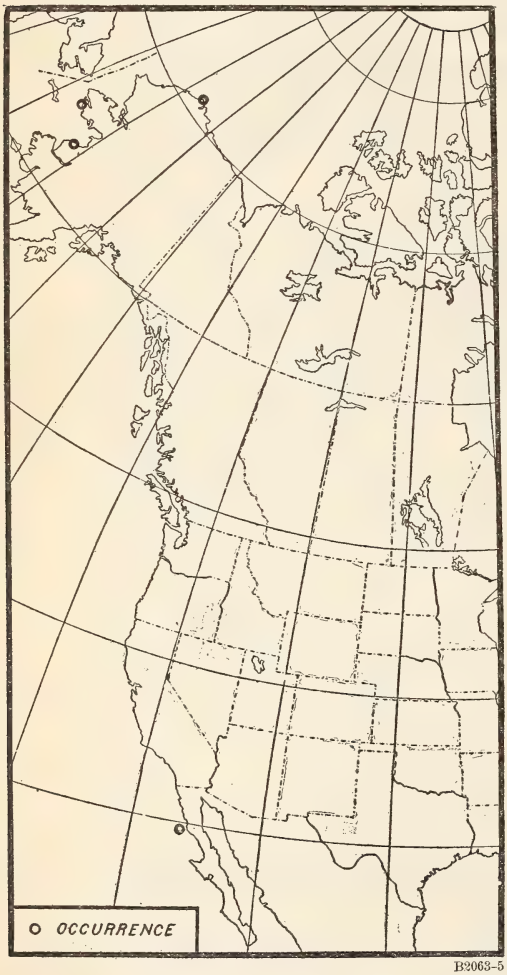


FIG. 12.—Nelson's gull (*Larus nelsoni*).

GREAT BLACK-BACKED GULL. *Larus marinus* LINNÆUS.

Range.—North Atlantic from central Greenland and northern coast of Europe, south to the Great Lakes, Delaware Bay, the Canaries, and northern Egypt.

Breeding range.—The usual northern limit of nesting of the great black-backed gull is in central Greenland, about latitude 70°, Disco (Dawson), and Godhavn (M'Clintock), but occasionally a few breed north to latitude 73° at Upernivik (Schalow), whence it breeds south to the southern end of Greenland on the west side. There seems to be no certain record of its breeding on the east coast of Greenland or anywhere on the Arctic islands of North America. It breeds along the northern coast of Europe east to the Petchora River (Saunders), but is rare on the islands off the coast; it also

breeds on Iceland and south along the western coast of Europe to about latitude 50°. The principal summer home seems to be the Labrador coast, where it is an abundant breeder from Cape Chidley, Hudson Strait (Low), along the whole coast and south to Newfound-

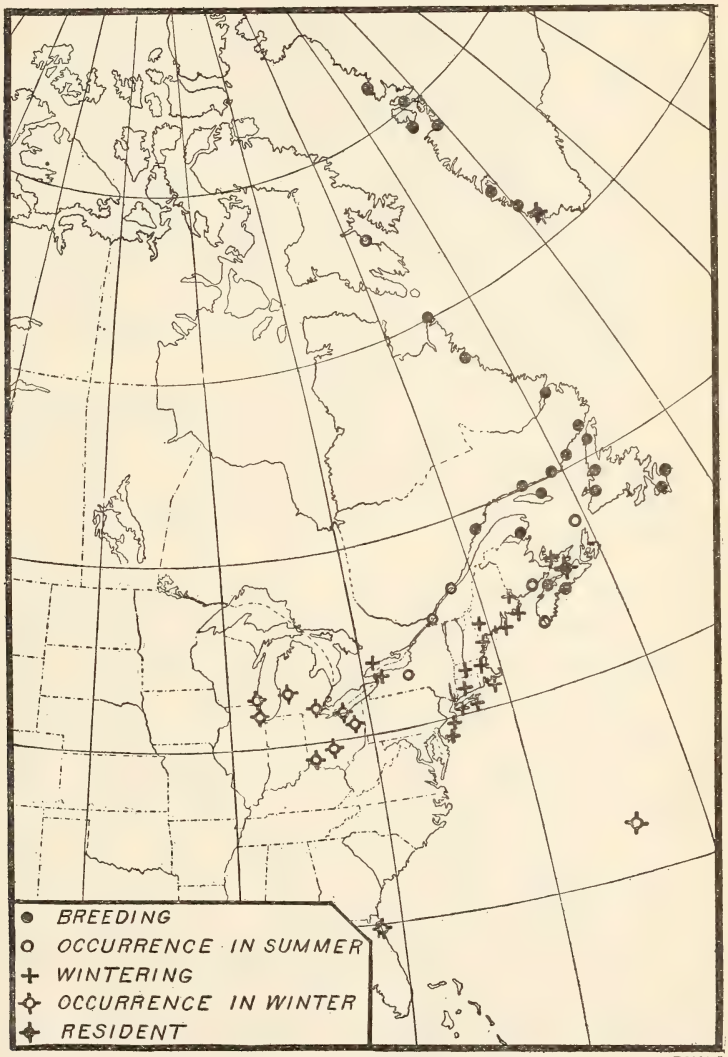


FIG. 13.—Great black-backed gull (*Larus marinus*).

land (Arnold), Anticosti Island (Brewster), Godbout, Quebec (Comeau), Pictou, Nova Scotia (Hickman), Halifax, Nova Scotia (Jones), and Kentville, Nova Scotia (Tufts). A few nonbreeders remain all summer on the Maine coast (Knight).

Winter range.—A few of these gulls winter as far north as southern Greenland (Hagerup), but the bulk are found along the United States coast from Maine to New Jersey. Some remained at North River, Prince Edward Island, all of the winter of 1888–89 (Bain), but usually they are forced away by the ice. A few visit the Great Lakes in winter. The European birds winter on inland waters and occur along the coast south to the Canaries; they also stray rarely south to Egypt. The winter of 1894–95 one wandered to St. Augustine, Fla. (Cory), and the species has been taken twice on Bermuda, December, 1851, and December 27, 1862 (Reid). It was noted at Columbus, Ohio, December 16, 1907 (Jones), and near Detroit, Mich., in March, 1904 (Swales). How nearly some individuals are nonmigratory is shown by the fact that a young bird banded July 27, 1912, in Yarmouth County, Nova Scotia, was found December 6, 1912, in Cumberland County, Me., while another one banded at the same place July 23, 1912, had moved only a few miles to the next county by December 18, 1912 (Cleaves).

Spring migration.—The first great black-backed gull was noted April 25, 1887, and April 18, 1888, at North River, Prince Edward Island (Bain); at Romaine, Labrador, March 26, 1914 (Birdseye); and at Rigolet, Labrador, April 9, 1914 (Birdseye). At St. Johns, Newfoundland, the species was present as early as March 1, 1883 (Merriam).

It was noted at Atlantic City, N. J., to March 13, 1888 (Rhoads); Orient, Long Island, to March 24, 1909 (Latham); Shelter Island, Long Island, April 12, 1893 (Worthington); Branchport, N. Y., April 18, 1898 (Stone); Boston, Mass., average, April 10 (Wright). Some unusually late individuals were seen at Toronto, Ontario, May 26, 1897 (Fleming); Rockaway, Long Island, May 13, 1910 (Griscom and Dow); Boston, Mass., May 25, 1907 (Wright); and at Woods Hole, Mass., May 30, 1893, and June 10, 1891 (Edwards). Those seen July 27, 1908, at Portland, Me. (Eastman), and July 9, 1887, at the Magdalen Islands (Bishop) may have been nonbreeding birds that had summered, or early fall migrants.

Eggs have been taken at Ivigtut, Greenland, from May 3 to June 15 (Hagerup); near Kentville, Nova Scotia, May 22–25 (Bishop); and at Godbout, Quebec, as late as July 17, 1882 (Comeau).

Fall migration.—The average date of arrival in fall at Woods Hole, Mass., is October 8, earliest September 24, 1895 (Edwards); the average at Boston, Mass., October 14, earliest October 7, 1909 (Wright); and the average at Orient, Long Island, October 5, earliest September 12, 1906 (Latham). A very early individual was seen near Cambridge, Mass., August 29, 1901 (Eustis); one near Jones Inlet, Long Island, August 14, 1910 (Weber); and at Toronto, Ontario, September

18, 1896 (Fleming). The species becomes common in its winter home about the middle of November.

The last one in 1892 at Gothaab, Greenland, was seen on September 3 (Stone); North River, Prince Edward Island, November 12, 1889 (Bain); and Pictou, Nova Scotia, December 13, 1894 (Hickman).

SLATY-BACKED GULL. *Larus schistisagus* STEJNEGER.

The principal summer home of the slaty-backed gull is on the northern shore of the Sea of Okhotsk, the eastern coast of Kam-

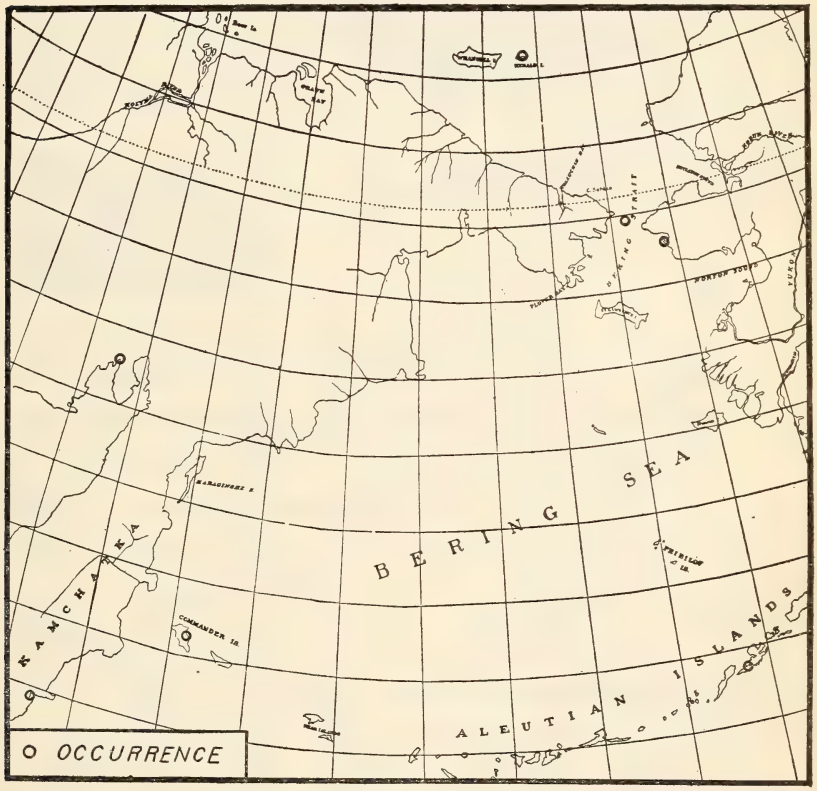


FIG. 14.—Slaty-backed gull (*Larus schistisagus*).

chatka, and on the Kuril Islands. Here it arrives about April 20; the height of its nesting season is June 1–10, and it leaves for its winter home the middle of October, while a few remain to the last of that month. On Bering Island, where it does not breed, it arrived April 20, 1883, and remained until May 5 (Stejneger). It winters to southern Japan.

It has wandered to Herald Island in the Arctic Ocean (Ridgway); Diomede Islands in Bering Strait, September, 1880 (Hooper); Port

Clarence (Ridgway), where single birds were noted; and to Chernoffsky Bay, Unalaska, where a large flock was seen October 1, 1880 (Bean). None of these places is far distant from the usual home of the species, and it probably occurs not rarely in migration on the shores of Bering Sea and of the adjacent Arctic Ocean. A specimen taken June 9, 1901, at Franklin Bay, Mackenzie (Babbitt), was a straggler far from home.

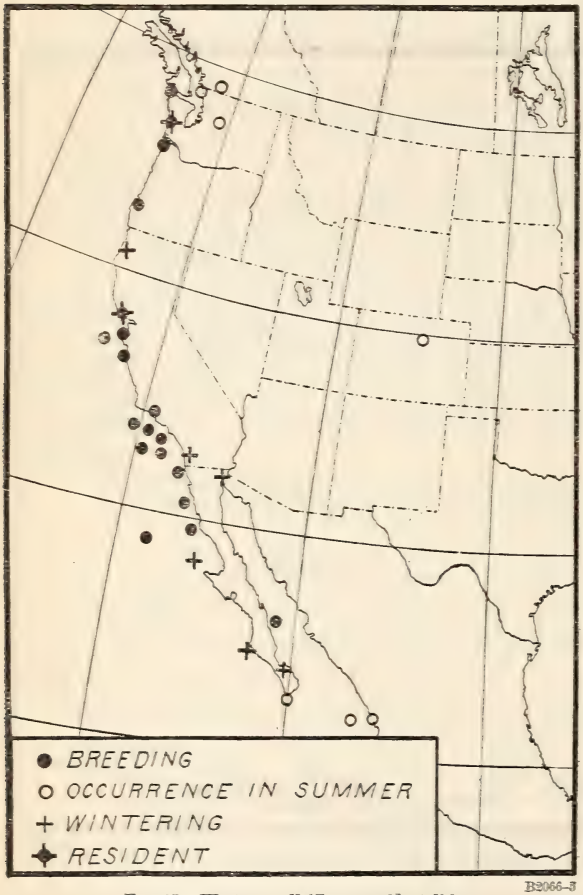


FIG. 15.—Western gull (*Larus occidentalis*).

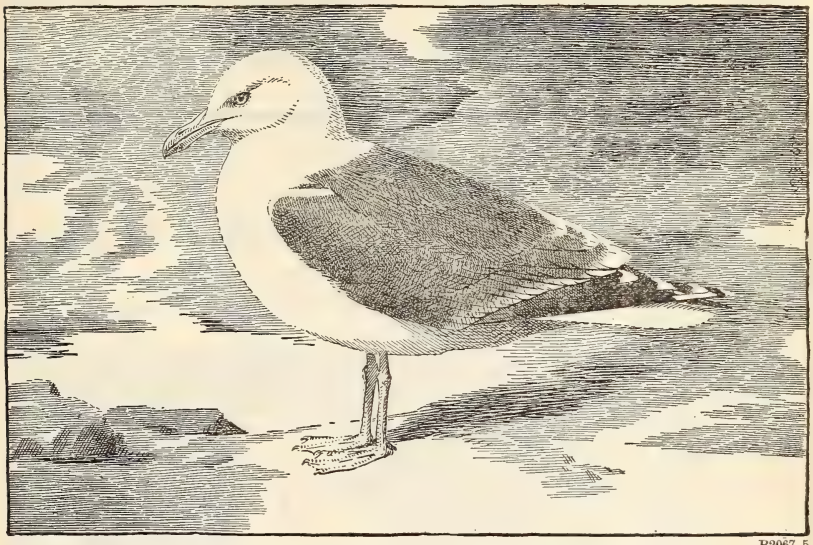
WESTERN GULL.

Larus occidentalis AUDUBON.

The western gull is resident along the Pacific coast from northern Washington to southern Lower California. The species breeds north at least to Carroll Islet, Wash. (Jones), and one was seen at Tatoosh Island, Wash., June 5, 1907 (Jones), but it may have been a nonbreeder. Southward it breeds to the southern end of Lower California, near Carmen Island (Frazar). During the spring of 1905 it was common along the coast of the mainland of Mexico south to San Blas, Tepic (Bailey), and, though as late as April 6–12 it was still common on Isabella Island, one of the Tres Marias, there was no sign of its breeding anywhere in that region (Bailey).

Eggs were taken March 13, 1887, near Carmen Island, Lower California (Frazar); Idlefonso Island, Lower California, April 5–7, 1906 (Thayer); in California on the Farallon Islands, May 6, 1863, and May 13, 1864 (Cooper); May 9, 1885, May 9, 1886, and May 13, 1887 (Bryant); Santa Barbara Island, May 18, 1897 (Grinnell); and

Tomales Point, May 24, 1884 (specimens in U. S. National Museum). Eggs and young were found at Otter Rock, Oreg., June 29, 1899



B2067–5

FIG. 16.—Western gull (*Larus occidentalis*), adult in summer plumage.

(Prill), and on the islands near Lapush, Wash., June 21, 1897 (Young). The species winters commonly in Shoalwater Bay, Wash., and is not rare at this season north to Vancouver Island, British Columbia (Mayne). It also winters along the whole Pacific coast of the United States and Lower California and was abundant at the head of the Gulf of California, November 25 to December 15, 1898 (Price), and February and March, 1905 (Stone).

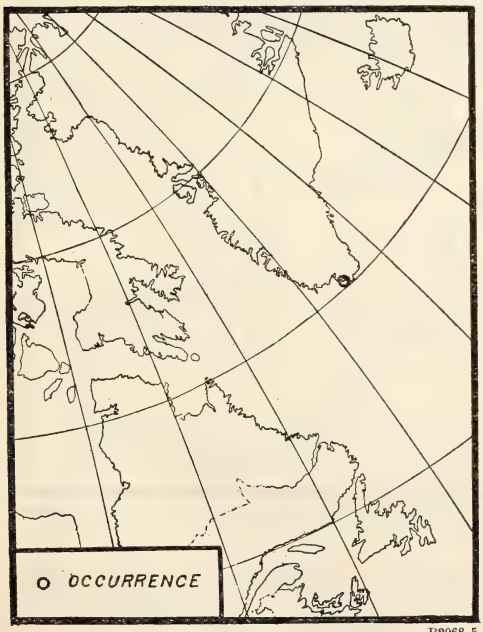


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FIG. 17.—Siberian gull (*Larus affinis*).

The species was taken once at Socorro Island, Mexico (Anthony), and once, September 30, 1889, at Loveland, Colo. (Osburn).

[SIBERIAN GULL.
Larus affinis REINHARDT.

Though normally an inhabitant of the Eastern Hemisphere, the Siberian gull was originally described from a wanderer to Nenortalik, in the Julianehaab district of southwestern Greenland. This species breeds regularly in northern Russia and Siberia from the Dwina to the Yenesei, and winters south to western India and northern Africa.]

HERRING GULL. *Larus argentatus* PONTOPPIDAN.

Range.—Northern Hemisphere from the Arctic islands of North America east to the White Sea, and south to the Caspian and Mediterranean Seas, the Gulf of Mexico, and western Texas.

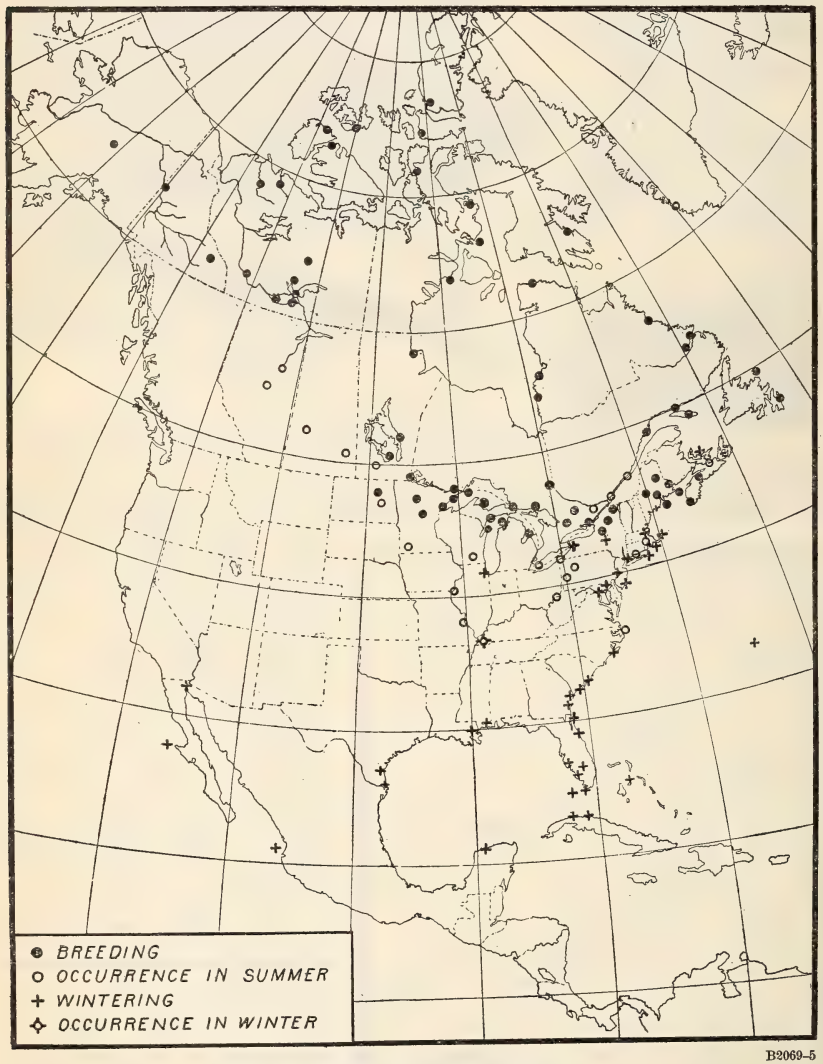

FIG. 18.—Herring gull (*Larus argentatus*).

Breeding range.—The herring gull, or silvery gull as it was called by the early Arctic explorers, breeds far north on the western Arctic islands to Melville Island (Parry), Wellington Channel (McCormick), and King Oscar Land (Sverdrup); these are in latitude about 75°, but thence eastward the breeding range turns south, and the species

is not known to breed anywhere in Greenland nor on the islands north of Europe. It has wandered once to Jan Mayen (Schalow), to Frederickshaab, Greenland (Walker), and to a few other places on the west coast of Greenland (Schalow). In northwestern North America there seems to be no sure breeding record north of near Mount McKinley (Sheldon), and the middle Yukon (Dall).

The breeding range extends south to Babine Lake, British Columbia; Shoal Lake, Manitoba; Mille Lacs, Minn. (Roberts); the islands in Lake Michigan at the mouth of Green Bay (Van Winkle); the Sisters and Strawberry Island in Green Bay, Wis. (Palmer); Little Charity Island, Saginaw Bay, Mich. (Wood and Gaige); the lakes of southern Ontario (Clarke); near Wilmurt, N. Y. (eggs in U. S.

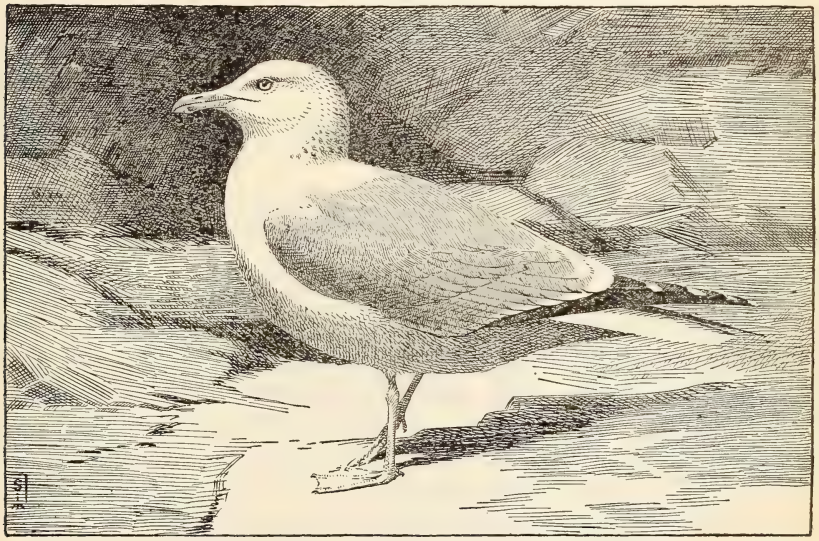

FIG. 19.—Herring gull (*Larus argentatus*), adult in winter plumage. B2070-5

National Museum); Four Brothers, Lake Champlain (Jordan); on the outer islands of the Maine coast west to No Mans Land Island in Penobscot Bay (Knight); and in Nova Scotia south to Kentville (Bishop).

In Europe the species breeds east to the White Sea and south to northern France (Saunders).

Winter range.—A few herring gulls sometimes remain in the Gulf of St. Lawrence all through the winter, as they did at North River, Prince Edward Island, the winter of 1888–89 (Bain), and at this season they are abundant on the Maine coast and southward. In the interior they are common on all the Great Lakes until the ice forms; many remain through the winter on Lake Erie, and some even on Lake Superior. On the Pacific coast the species winters north to northern Washington.

It ranges commonly in winter to the Gulf coast from Florida to Texas, less commonly to Lake Okechobee (Phelps) and Key West (Scott). A few were noted on the north coast of Cuba at Cardenas and Matanzas Bay, and the species was once found in the market at Habana (Gundlach); once, in 1888, near Nassau, Bahamas (Cory); and a few in Bermuda, November 4 to March 19, where it was more than usually common the fall of 1875 (Reid). In Texas it has been reported south to Corpus Christi (Saunders) and to Fort Brown (Merrill). A few pass south of the United States to Progreso, Yucatan, March 22 (Stone); the mouth of the Colorado River (Rhoads); Cerros Island, Lower California, January, 1885 (Bryant), and a few at the Tres Marias, May 22, 1897 (Nelson). The European birds winter south to the Mediterranean and Caspian Seas.

Spring migration of the herring gull.

Place.	Number of years' records.	Average date of spring arrival.	Earliest date of spring arrival.	Place.	Number of years' records.	Average date of spring arrival.	Earliest date of spring arrival.
Renovo, Pa	7	Feb. 17	Feb. 5, 1911	Athabaska River, Alberta, latitude 55°			May 7, 1901
Montreal, Canada	4	Apr. 22	Apr. 13, 1892	Fort Resolution, Mackenzie			May 17, 1860
Quebec City, Canada	6	Apr. 17	Apr. 10, 1901	Fort Simpson, Mackenzie	3	May 22	May 14, 1868
Godbout, Quebec			Apr. 3, 1888	Pelly Lake, Yukon			May 16, 1893
Pictou, Nova Scotia			Apr. 8, 1895	Fort Enterprise, Mackenzie			May 21, 1910
North River, Prince Edward Island	3	Apr. 2	Apr. 1, 1887	Igloolik, Franklin			Apr. 19, 1823
Ottawa, Ontario	22	Apr. 4	Mar. 13, 1894	Winter Island, Franklin			May 3, 1822
Madison, Wis	8	Mar. 19	Mar. 2, 1904	Bay of Mercy, Franklin			May 31, 1852
Heron Lake, Minn	6	Mar. 27	Mar. 20, 1889	Prince of Wales Strait, Franklin			June 7, 1851
Harrisburg, N. Dak	2	Apr. 7	Apr. 3, 1904				
Aweme, Manitoba	16	Apr. 11	Apr. 2, 1906				
Indian Head, Saskatchewan (near)	9	Apr. 27	Apr. 19, 1910				
Osler, Saskatchewan			May 1, 1893				
Edmonton, Alberta (near)	3	May 2	May 1, 1911				

Place.	Number of years' records.	Average date of the last one seen.	Latest date of the last one seen.	Place.	Number of years' records.	Average date of the last one seen.	Latest date of the last one seen.
Tortugas, Fla			Apr. 27, 1914	Jersey City, N. J. (near)	3	May 10	May 14, 1910
Clearwater Harbor, Fla			May 21, 1886	Central New York	15	May 15	June 2, 1906
Cumberland, Ga			Apr. 16, 1902	Providence, R. I. (near)	5	May 13	June 12, 1900
Charleston, S. C			May 2, 1910	Woods Hole, Mass	4	June 11	July 4, 1904
Pea Island, N. C			May 3, 1902	New Orleans, La			Mar. 25, 1894
Waverly, W. Va	3	Mar. 22	Mar. 25, 1906	Bay St. Louis, Miss			Mar. 26, 1902
Washington, D. C	4	Apr. 27	May 10, 1887	Brazos, Tex			Mar. 24, 1853
Baltimore, Md			May 28, 1897	St. Louis, Mo	2	Apr. 15	May 28, 1887
Beaver, Pa	3	Apr. 10	Apr. 16, 1890	Chicago, Ill	6	Apr. 23	June 15, 1909
Erie, Pa			May 16, 1875				
Renovo, Pa	6	Apr. 20	May 16, 1907				

Fall migration of the herring gull.

Place.	Number of years' records.	Average date of fall arrival.	Earliest date of fall arrival.	Place.	Number of years' records.	Average date of fall arrival.	Earliest date of all arrival.
Woods Hole, Mass..	5	Aug. 21	Aug. 8, 1887	Savannah, Ga.....	3	Nov. 3	Oct. 28, 1910
Central New York..	7	Aug. 20	Aug. 13, 1908	Tortugas, Fla.....	.....	.....	Dec. 12, 1887
Jersey City, N. J...	2	Sept. 21	Sept. 20, 1905	Keokuk, Iowa.....	6	Oct. 8	Sept. 1, 1900
Erie, Pa.....	.....	.....	Aug. 22, 1900	Chicago, Ill.....	.....	.....	Aug. 8, 1906
Charleston, S. C....	.....	.....	Nov. 5, 1911	Hickman, Ky.....	.....	.....	Oct. 14, 1886

Place.	Number of years' records.	Average date of the last one seen.	Latest date of the last one seen.	Place.	Number of years' records.	Average date of the last one seen.	Latest date of the last one seen.
Winter Island, Franklin	.....	.....	Sept. 15, 1821	Pelly River, Yukon	.....	.....	Oct. 7, 1904
Wellington Channel	.....	.....	Sept. 8, 1852	Fort Wrigley, Mackenzie (near)..	.....	.....	Oct. 13, 1903
King Oscar Land...	.....	.....	Oct. 30, 1899	Fort Resolution, Mackenzie.....	2	Sept. 22	Sept. 25, 1907
Montreal, Quebec..	7	Nov. 5	Dec. 11, 1891	Killarney, Manitoba.....	5	Oct. 18	Oct. 30, 1910
Pictou, Nova Scotia	.....	.....	Dec. 18, 1894	Aweme, Manitoba..	.....	.....	Nov. 7, 1899
North River, Prince Edward Island...	.....	.....	Dec. 25, 1889				
Ottawa, Ontario...	12	Nov. 7	Nov. 21, 1892				

Nonbreeding herring gulls are not rare during summer at many places south of the breeding range: Coosaw River, S. C., July 20, 1892; Erie, Pa., still common in early June, 1912; near New Haven, Conn., June 29, 1877; and common all summer on Pelee Island, in Lake Erie. The number of these summer nonbreeding birds on Long Island has largely increased within the past few years (Braislin).

Eggs have been taken at Midriff Lake, N. Y., May 15, 1894 (specimens in U. S. National Museum); Kentville, Nova Scotia, May 27 to July 5 (Bishop); Rowleys Bay, Wis., May 27, 1878 (specimens in U. S. National Museum); Great Duck Island, Me., May 27, 1900, and May 15, 1902 (Dutcher); Sturgeon Island, Lake Winnipeg, June 1, 1889 (Macoun); Great Whale River, Quebec, June 12, 1899 (Eifrig); Fort Resolution, Mackenzie, June 25, 1860 (Kennicott); Fort Anderson, Mackenzie, June 27, 1863 (MacFarlane), and Bellot Strait, June 25, 1859 (M'Clintock).

Probably the largest breeding colony of herring gulls in the United States is on Great Duck Island, Me., where in 1902 it was estimated that 3,400 pairs were nesting (Dutcher). The nesting season is extended, for eggs were found on an island in Penobscot Bay as late as August 19, 1896 (Knight).

One of the most interesting records of bird migration ever secured is that of a herring gull which wintered for many years at the Brenton Reef Lightship, near Newport, R. I. This gull—called by the lightkeeper "Dick"—came each day during winter to be fed. It was first noted and fed in the fall of 1872, but, of course, there was no way of knowing how old the bird was at that time. It continued

to visit the lightship and spend the winter in the immediate vicinity for 24 consecutive years, outliving all the lightship attendants who first fed it. During the last years it arrived October 5, 1890; October 12, 1891; September 28, 1892; October 7, 1893; October 2, 1894; and October 2, 1895. It was last seen in spring April 6, 1892; April 7, 1893; April 5, 1894; April 6, 1895, and April 7, 1896—a remarkably uniform date of departure.

VEGA GULL. *Larus vegæ* PALMÉN.

Knowledge concerning the distribution and migration of the Vega gull is very limited. It was originally described from specimens taken at Pidlin, on the northern coast of Siberia, where the ship *Vega* had wintered, and it has since become known along that coast from the Taimyr Peninsula east to Bering Strait, on the Liakoff Islands, and at Plover Bay, where it is common, and also along the coasts of Kamchatka and the Sea of Okhotsk. A specimen now in the United States National Museum was taken by Nelson on Diomede Island in Bering Strait, in July, 1881. In migration and winter this gull has been taken on the coasts of Japan and China, south to Formosa and the Ogasawara (Bonin) Islands.

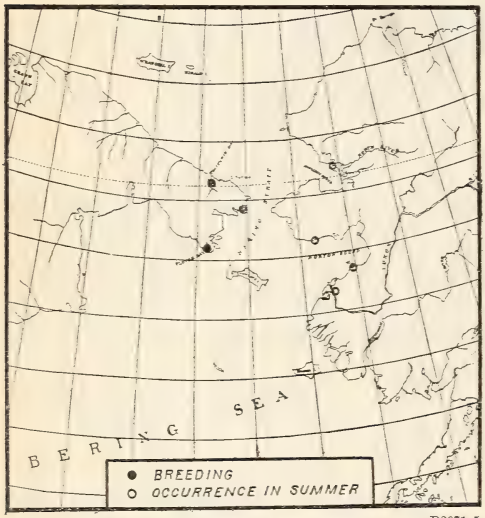

FIG. 20.—Vega gull (*Larus vegæ*). B2071-5

Information concerning the occurrence of the Vega gull on the eastern side of Bering Strait is less satisfactory. Under the name of *Larus borealis*, Baird notes a specimen from Norton Sound, and the catalogue of the United States National Museum records that it was taken by Bischoff at St. Michael in May; Nelson records a specimen of *Larus cachinnans* that was brought to him at St. Michael, October 16, 1880, and thinks that he saw the same species on several other occasions, and that it occurs on the Alaska coast from Kotzebue Sound to the mouth of the Yukon. Both these names, *borealis* and *cachinnans*, refer to *Larus vegæ*, whose occurrence on the Alaskan coast was made certain in 1910 by the capture of four specimens at Nome, September 2–14, (Thayer). One of these was identified at the Biological Survey. Whether or not the species breeds to the eastward of Bering Strait remains for future determination.

Eggs were taken in the Kolyma delta, Siberia, June 26, 1912, and at Cape Bolshaja, Baranof, July 12, 1912. Even as late as September 10, 1911, young fully fledged but still being fed by their parents were seen at Cape Kibera Island (Thayer and Bangs).

CALIFORNIA GULL. *Larus californicus* LAWRENCE.

Range.—Western North America from the lower Anderson River, Mackenzie, to Oaxaca, Mexico.

Breeding range.—The California gull breeds throughout a great extent of latitude, but in this wide range the nest has been found at only a few places: Fort Anderson and the lower Anderson River, Mackenzie (MacFarlane), though probably rare, if anything more than casual, so far north; Great Slave Lake from Fort Resolution to Fort Rae (eggs in U. S. National Museum); Big Stick Lake and Crane Lake, Saskatchewan (Bent); Stump Lake, N. Dak. (Eastgate); Devils Lake, N. Dak., common (Job and Bishop); Great Salt Lake (Ridgway); Utah Lake (Goodwin); Malheur Lake and Lower Klamath Lake, Oreg. (Finley); Pyramid Lake and Soda Lake, Nev. (Ridgway); Clear Lake, Cal. (Finley); Eagle Lake, Cal. (Townsend), and Mono Lake, Cal. (Brewster).

Winter range.—The principal winter home of the California gull is along the coast of the State from which it derives its name and north to Portland, Oreg. (Anthony). A few remain in winter on Great Salt Lake (Goodwin), and the species ranges south at this season to the coast of Lower California, being common even as far south as La Paz (Bryant). Thence it has occurred at Rio de Coahuayana, Colima (Brewster); Manzanillo, Colima (Nelson); Alvarado, Vera Cruz (Ferrari-Perez); and San Mateo, Oaxaca, February, 1869 (Sumichrast). It is also fairly common in winter at the head of the Gulf of California (Rhoads), and inland to the Salton Sea, Cal. (Grinnell) and to Owens Lake, Cal. (Fisher).

Migration range.—Outside the usual breeding and winter ranges the California gull has been taken at Fort Simpson, Mackenzie (specimen in U. S. National Museum); Many Island Lake, Alberta, June 18 to July 13, 1906 (Bishop); Reno County, Kans., October 20, 1880 (Goss); Galveston, Tex. (Singley); Laredo, Tex., October 16, 1866 (specimen in U. S. National Museum); Denver, Colo., October 26, 1878 (Carter); Middle Park, Colo., at 7,000 feet altitude, April 28, 1884 (Carter); Coventry, Colo., one in 1905 (Warren); Loveland, Colo., May 7, 1890 (Osburn); Larimer County, Colo., April 18, 1894 (Breninger); Hawaii, once (Bryan); British Columbia, on the coast north to Cormorant Island, May 24, 1911 (Wetmore); and at Hot Springs, Atlin, British Columbia, July 16, 1914 (Kermode).

Spring migration.—The first of these gulls was seen at Okanogan Lake, British Columbia, April 11, 1907 (Brooks); Devils Lake, N. Dak.,

April 24, 1903 (Bowman); Harrisburg, N. Dak., April 25, 1904 (Eastgate); and the last at Catalina Island, Cal., May 12, 1897 (Grinnell); Monterey, Cal., May 19, 1897 (Loomis); and San Jose del Cabo, Lower California, May 17, 1882 (Belding).

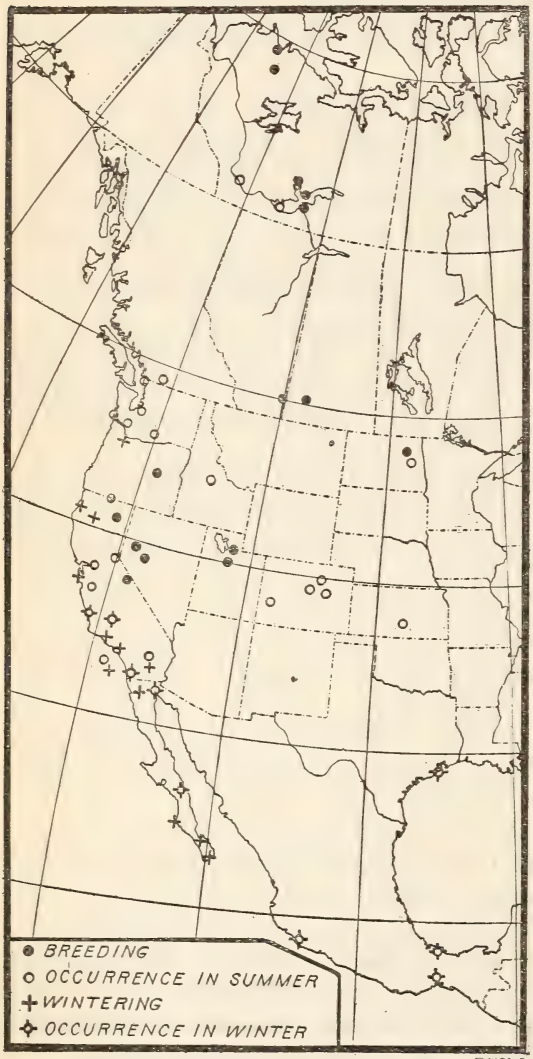

FIG. 21.—California gull (*Larus californicus*).

Eggs have been taken at Pyramid Lake, Nev., May 16, 1868, May 15, 1875, and June 4, 1891 (specimens in U. S. National Museum); Carrington Island in Great Salt Lake, June 17, 1869 (Ridgway); Fort Resolution, Mackenzie, June 26, 1860 (specimens in U. S. National Museum); young just hatched, at Big Stick Lake, Saskatchewan, June 14, 1906 (Bent); and young, a few days old, on Loon Island, Great Slave Lake, July 13, 1901 (Preble).

Fall migration.—A single California gull, unusually early, appeared at Monterey, Cal., August 1, 1894; no more were seen until August 21, and by the first of September the species was fairly common. In 1896 the first was not seen until September 28, the next October 9, and it was common from this latter date (Loomis). At Berkeley, Cal., the first was seen October 9, 1888 (Palmer); near San Pedro, Cal., September 13, 1902 (Daggett); Magdalena Island, Lower California, November 24, 1905 (Nelson and Goldman); Puget Sound, Wash., August 3 and 12 (specimens in U. S. National Museum); and Chilliwack, British Columbia, August 26, 1889 (Brooks). The last was seen at Hay River, Mackenzie, November 5, 1908 (Jones).

RING-BILLED GULL. *Larus delawarensis* ORD.

Range.—North America from British Columbia, southern Mackenzie, and central Quebec south to Florida and southern Mexico.

Breeding range.—The ring-billed gull occupies in summer a rather narrow belt stretching across North America with its northern side beginning at Hamilton Inlet, Quebec (Macoun), and extending to Fort George, on James Bay (eggs in U. S. National Museum); a little north of Fort Churchill, Keewatin (Preble); and Great Slave Lake,

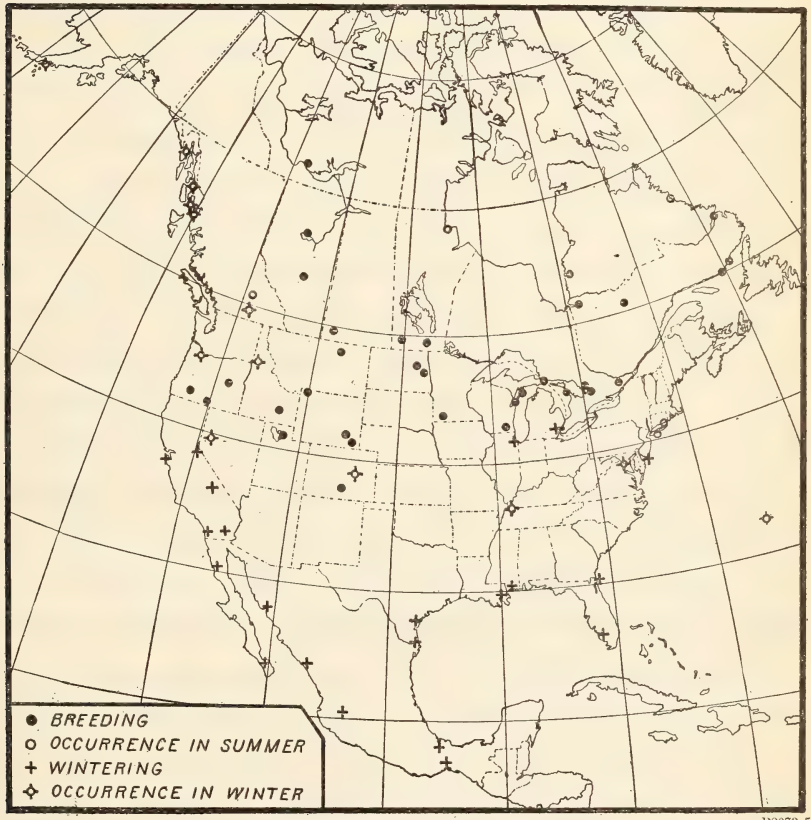

FIG. 22.—Ring-billed gull (*Larus delawarensis*).

Mackenzie (Kennicott). The distribution on the Pacific slope is not so far northward. The species is known to breed on Malheur Lake and Lower Klamath Lake, in southern Oregon (Finley), and at Buffalo Lake, near Red Deer, Alberta (Dippie). It was common at Shuswap Lake, British Columbia, in June, 1889 (Macoun). It breeds south to Cape Whittle, in the Gulf of St. Lawrence (Frazar); the islands in Georgian Bay (Fleming); formerly on the islands in Green Bay, Wis., and in 1860 at Lake Koshkonong (Kumlien and Hollister); in 1892 on Gull Island, near Vans Harbor, Mich. (Van Winkle); Heron

Lake, Minn. (Roberts); Devils Lake, N. Dak. (Job); San Luis Lakes, Colo. (Cooke); Great Salt Lake, Utah (Saunders); and Minidoka, Idaho (Dille).

Winter range.—The principal winter home of this gull along the Atlantic coast is from North Carolina to Florida, but a few remain in the Chesapeake Bay and rarely on the New Jersey coast—Cape May, January, 1892 (Stone)—while it is a straggler in winter still farther north. It can usually be found at Detroit, Mich., and on Lake Michigan during winter, and at Chicago, Ill., it was common the whole winter of 1894–95 (Parker). It is common on the Gulf coast in winter, south to Fort Myer, Fla. (Scott), and to Brownsville, Tex. (Merrill), while in the interior it has been known to occur at Washington, D. C., January 23, 1887 (Fisher); Hickman, Ky., January 1, 1887 (Pindar); Barr Lake, Colo., occasional in winter (Rockwell); near Colorado Springs, Colo., about January 1, 1890 (Aiken and Warren); Fort Sherman, Idaho, once in January (Merrill); Lewistown, Mont., one, December 31, 1898, killed by eating of the carcass of a sheep that had been poisoned as bait for coyotes (Silloway); and Pyramid Lake, Nev., December 21, 1867 (Ridgway). On the Pacific coast it winters from San Francisco Bay, Cal., to San Diego, and, in the interior, on Owens Lake, Salton Sea, and Lake Tahoe (Grinnell); also south to San Quintin, Lower California, December 27, 1905, to January 21, 1906 (Thayer); La Paz, Lower California, February 15, 1882 (Brewster); Mazatlan (Lawrence); Guaymas, December; Presidio, January and February; Santa Ana, near Guadalajara, November (Saunders); and Tehuantepec, February 21, 1869, and in March (Sumichrast). It occurs casually in winter north to Portland, Oreg. (Anthony), Bellingham Bay, Wash. (Edson), and to the Lower Fraser Valley and Lake Okanogan (Brooks). A straggler was taken in Bermuda, January 1, 1849 (Reid).

Migration range.—A specimen of the ring-billed gull was taken September 6, 1900, at Port Manvers, on the Labrador coast (Bigelow). It is reported as occurring in Newfoundland (Reeks); at Ingonish, Cape Breton Island (Townsend); and was seen during the fall of 1911 in Alaska as follows: Kings Cove, the middle of August; Icy Strait, August 30; Wrangell Narrows, August 31; and Ketchikan, September 1 (Wetmore). One was taken May 24, 1911, near Campbell Island, British Columbia (Beck), and August 6–18, 1897, the species was common in flocks along the British Columbia coast near Port Simpson (Preble). The first record for Hawaii is that of an individual taken February 1, 1901 (Bryan).

Spring migration.—The first spring migrants of this species usually appear at Washington, D. C., in February—February 5, 1900, and February 16, 1913; Canandaigua, N. Y., February 1, 1906 (Antes); Rockaway Beach, N. Y., February 13, 1910 (Griscom and Dow);

Saybrook, Conn., March 8, 1887 (Clark); and had reached the coast of Newfoundland by April 19, 1883 (Merriam).

In the interior the first were reported at Grand Rapids, Mich., March 28, 1891 (White); St. Louis, Mo., March 7, 1909 (Betts); Keokuk, Iowa, March 8, 1903 (Currier); Storm Lake, Iowa, March 15, 1888 (Bond); Canton, Ill., March 9, 1897 (Cobleigh); Madison, Wis., average March 19, earliest March 12, 1911; Lanesboro, Minn., March 23, 1893 (Hvoslef); Heron Lake, Minn., average April 1, earliest March 22, 1894 (Miller); White Earth, Minn., April 3, 1882 (Cooke); Lincoln, Nebr., average April 3, earliest March 28, 1899 (Wolcott); near Valentine, Nebr., average April 1, earliest March 12, 1893 (Bates); Sioux Falls, S. Dak., March 19, 1911 (Larson); Vermilion, S. Dak., March 31, 1884 (Agersborg); near Devils Lake, N. Dak., average April 16, earliest April 11, 1895; southern Manitoba, average April 25, earliest April 21, 1905; Indian Head, Saskatchewan, April 11, 1908 (Lang); mouth of Pelican River, Mackenzie, May 9, 1901 (Preble); Pecks Lake, Ariz., April 13, 1886 (Mearns); Fort Verde, Ariz., April 17, 1888 (Mearns); Loveland, Colo., average March 14, earliest March 9, 1890 (Smith); San Luis Lakes, Colo., April 4, 1887 (Woodbury); Coventry, Colo., April 13, 1906 (Smith); Great Falls, Mont., average April 6, earliest April 5, 1890 (Williams); and Stony Plain, Alberta, April 24, 1911 (Stansell).

The last in spring were noted at Big Gasparilla Pass, Fla., May 22, 1886 (Scott); Pea Island, N. C., May 10, 1906 (Bishop); Washington, D. C., April 28, 1887 (Fisher); Erie, Pa., April 26, 1902 (Todd); Loyalhanna Creek, Pa., May 7, 1881 (Townsend); Atlantic City, N. J., June 20, 1900 (Stone); Geneva, N. Y., May 24, 1888 (Miller); New Orleans, La., April 28, 1894 (Beyer); Bay St. Louis, Miss., March 29, 1902 (Allison); Kansas City, Mo., May 3, 1902 (Bryant); Chicago, Ill., June 21, 1907 (Armstrong); Sioux City, Iowa, May 8, 1904 (Rich); Spirit Lake, Iowa, June 14, 1890 (Berry); Madison, Wis., May 17, 1905 (Blackwelder); Corpus Christi, Tex., April 12, 1889 (Sennett); Emporia, Kans., May 6, 1884 (Kellogg); Hyperion, Cal., May 24, 1910 (Grinnell); and Quinn River, Nev., June 1, 1909 (Taylor).

Nonbreeding individuals remain all summer along the coast of Long Island (Braislin), on Lake Ontario near Kingston (Clarke), on Lake Michigan, and on the small interior lakes of Wisconsin (Kumlien and Hollister), and Barr Lake, Colo. (Rockwell).

Eggs have been taken from June 20, 1884, in southeastern Labrador to August 3, 1860, at Rupert House, Quebec (specimens in U. S. National Museum). Eggs were obtained May 23, 1898, at Devils Lake, N. Dak. (Job), and June 13, 1893, at Stump Lake, N. Dak. (Knight). Audubon found many eggs, but none of them hatched, June 18, 1833, at Little Mecattina, on the north coast of the Gulf of

St. Lawrence, latitude 50°. In the same latitude at Crane Lake, Saskatchewan, young were already out of the shell, June 9, 1894 (Spreadborough). Young not yet able to fly were noted near Strater, Mont., July 18, 1910 (Anthony).

Fall migration.—The first fall migrant of the species was noted at Woods Hole, Mass., September 17, 1891 (Edwards); Wildwood, N. J., September 7, 1895 (Stone); Pea Island, N. C., July 23 and August 20, 1904 (Bishop); Charleston, S. C., September 26, 1909 (McDermid); Savannah, Ga., September 30, 1909, and common by October 6 (Perry); and Fernandina, Fla., July 13, 1906, next seen August 3, and common September 16 (Worthington). It is evident that these July records refer either to nonbreeding birds that have spent the summer south of the regular summer home or to birds that having lost their eggs or young have started early on their southward journey.

The first appeared at Delavan, Wis., August 18, 1892, and the next, September 1 (Hollister); Toronto, Ontario, August 20, 1890 (Fleming); Point Pelee, Ontario, August 24, 1907 (Taverner); Lake Forest, Ill., August 8, 1906 (Ferry); Bay St. Louis, Miss., October 10, 1901, common by October 14 (Allison); Lincoln, Nebr., August 14, 1900 (Wolcott); Denver, Colo., August 21, 1910 (Williams); Okanogan Lake, British Columbia, July 28, 1907, and August 8, 1911 (Brooks); Chilliwack, British Columbia, August 13, 1888, and August 15, 1889 (Brooks); Alamitos Bay, Los Angeles County, Cal., September 17, 1907 (Grinnell).

The last one seen in 1901 on Anticosti Island was on September 18 (Schmitt); Woods Hole, Mass., November 17, 1889 (Edwards); near Newport, R. I., December 1, 1900 (Mearns); Erie, Pa., October 17, 1900 (Worthington); Harrisburg, N. Dak., October 17, 1901 (Eastgate); Denver, Colo., November 12, 1908 (Rockwell); Provo, Utah, November 30, 1872 (Henshaw); and Valentine, Nebr., November 15, 1894 (Bates).

SHORT-BILLED GULL. *Larus brachyrhynchus* RICHARDSON.

Range.—Western North America from northwestern Mackenzie to southern California.

Breeding range.—The short-billed gull was originally described from a specimen taken at Fort Franklin, Great Bear Lake, Mackenzie, May 23, 1826 (Richardson), from nearly the northern limit of its range, the species breeding only a little farther north, to Fort Anderson (MacFarlane). Thence it ranges in the breeding season west to Fort Yukon (Dall) and the mouth of the Kowak River (Grinnell). The principal summer home of the species is in Alaska, where it breeds west to Cape Lisburne (eggs in U. S. National Museum); Nelson Island (Thayer); and Nushagak (eggs in U. S. National Museum); and south to Morshovoi Bay (Littlejohn); Kodiak Island (U. S. National Museum);

Homer (Chapman); Montague Island (Grinnell); Yakutat (Blackwelder); and Glacier Bay (Fisher). Inland it breeds south to Lake Marsh (Bishop); Hot Springs and Pike River, Atlin, British Columbia (Kermode); and is a common breeder in the Mackenzie Valley south to the lower Slave River (Preble) and to the Charlot River on Lake Athabaska (Harper).

Winter range—This gull winters on the Pacific coast from Vancouver Island (Kermode) to extreme southern California at San Diego

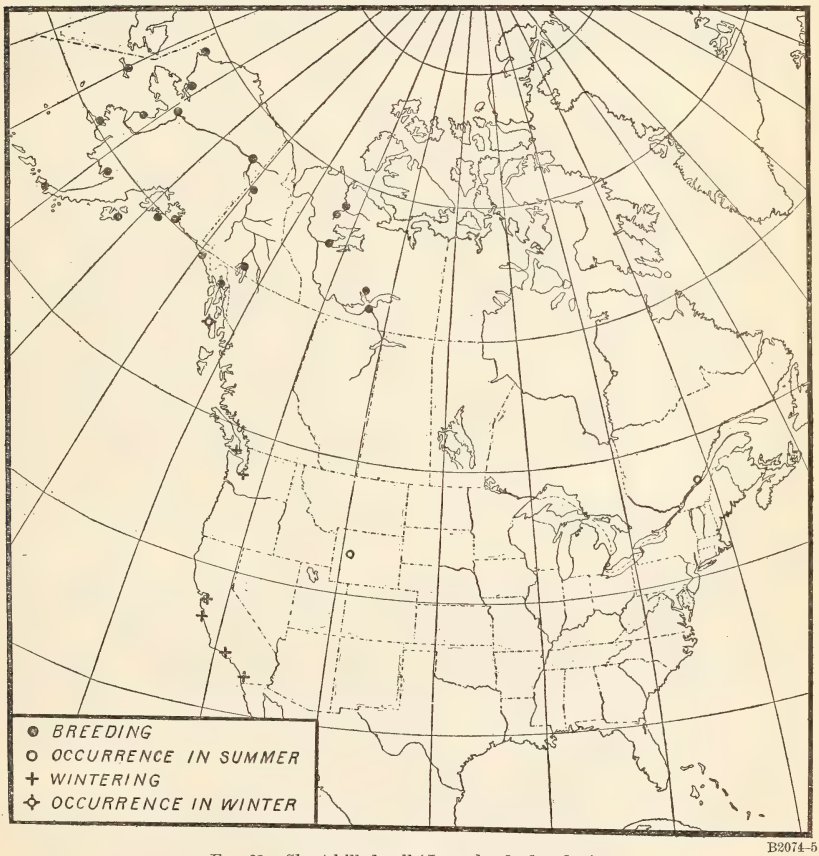

FIG. 23.—Short-billed gull (*Larus brachyrhynchus*).

(Henshaw), and occasionally as far north as Sitka, Alaska, where it was taken in December 1865, and January, 1866 (specimens in U. S. National Museum).

There are three records of extensive wanderings: One was taken near Quebec City, Canada (Dionne); one on the Kuril Islands in February (Saunders), and a specimen now in the collection of the Biological Survey was taken August 28, 1893, on Lake Fork, in the Wind River Mountains, Wyo., at 10,000 feet altitude (Bailey).

Spring migration.—One of these gulls was noted in Queen Charlotte Sound, British Columbia, April 6, 1909 (Swarth); Windfall Harbor, Admiralty Island, Alaska, April 24, 1907 (Grinnell); St. Michael, Alaska, May 11, 1866 (specimen in U. S. National Museum); Mount McKinley, Alaska, near base, May 10, 1908 (Sheldon); Fort Simpson, Mackenzie, May 8, 1904 (Preble); and the lower Kowak River, Alaska, May 15, 1899 (Grinnell).

Eggs were taken on the Lockhart River, Mackenzie, as early as May 28, 1862 (MacFarlane); Fort Resolution, Mackenzie, June 7, 1860 (Kennicott); Fort Rae, Mackenzie, June 6, 1862 (specimen in U. S. National Museum); mouth of Porcupine River, Yukon, June 9, 1865 (U. S. National Museum); St. Michael, Alaska, June 6, 1878 (U. S. National Museum); Cape Lisburne, Alaska, June 10, 1885 (U. S. National Museum); Montague Island, Alaska, July 5, 1908 (Grinnell); and downy young on Hawkins Island, Alaska, June 23, 1908 (Grinnell), and at Lake Marsh, Yukon, July 1, 1899 (Bishop). The species was common all the summer of 1907 at various localities in the Sitka district, but apparently none were breeding (Grinnell).

Fall migration.—A specimen taken July 30, 1856, in Puget Sound (U. S. National Museum) probably represents an early fall migration of a nonbreeding bird, as also those seen July 18, 1909, at Bradfield Canal, British Columbia (Swarth). The first was noted at Chilliwack, British Columbia, August 26, 1889 (Brooks); Scio, Oreg., September 21, 1900 (Prill); Berkeley, Cal., October 9, 1886 (Keeler); Monterey, Cal., October 29, 1896 (Loomis); Ventura, Cal., November 26, 1884 (Henshaw); and San Diego, Cal., December 11, 1884 (Henshaw).

The species departed from the lower Kowak River, Alaska, the last week in August, 1898 (Grinnell); the last were at Cape Nome, Alaska, August 28, 1910 (Thayer); Icy Cape, Alaska, July 30 (Seale); Collinson Point, near Camden Bay, Alaska, September 8, 1914 (Anderson); St. Michael, Alaska, September 23, 1899 (Bishop); near Lake Hardisty, Mackenzie, August 25, 1903 (Preble); and Petersburg, near Sitka, Alaska, October 7, 1913 (Willett).

An interesting question arises in connection with the migration route of those individuals that breed in the Mackenzie Valley. Migration dates show that the birds do not enter Mackenzie by way of the Yukon Valley, for the arrival dates are as early at Fort Simpson, Mackenzie, as at the mouth of the Yukon. Future investigations will undoubtedly show that these Mackenzie Valley birds make a direct flight from the coast of southern Alaska to Great Slave Lake, though this requires that they cross the divide of the Rocky Mountains—here about 2,500 feet high—in early May, when even the lowest passes are still deep in snow.

[**MEW GULL.** *Larus canus* LINNÆUS.

The mew gull is a species of the Eastern Hemisphere, having there a wide range from northern Europe and Asia to the Mediterranean, the Nile, and the Persian Gulf. On the Pacific coast it occurs from the northern coast of the Sea of Okhotsk, Kamchatka, and Bering Island, to Japan and China.

The only sure record for North America is that of a specimen taken by Dr. Coues at Henley Harbor, Labrador, August 21, 1860. This specimen found its way to the British Museum.

The mew gull has been erroneously recorded several times on the coast of California. One recorded November 30, 1905, at Pacific Beach, was a young ring-billed gull, and one reported April 14, 1907, from Alamitos Bay proved to be the Pacific kittiwake. Early records of Loomis and late records of Beck, from Monterey Bay, are referable to the short-billed gull.]

HEERMANN'S GULL. *Larus heermanni* CASSIN.

Range.—Pacific coast from British Columbia to Mexico.

Heermann's gull is the only member of the group that regularly migrates in summer to the north of its breeding grounds and is common in the United States at that season, though not as yet known to breed north of Mexico. Up to date only a few nesting places are known. In April, 1875, Dr. Streets found an immense colony preparing to breed on Isla Raza, on the west side of the Gulf of California near latitude 29°. Though eggs had not yet been laid, the birds were mating, and the presence of many thousands of tons of guano bore witness to the fact that the island had been used as a breeding place for untold generations.

The eggs of Heermann's gull have been among the desiderata of collectors for many years, and it is noteworthy that they should at last have been found in the same month at widely separated localities by two expeditions sent out principally for this purpose. W. W. Brown, jr., collecting for J. E. Thayer, found a colony, March 28, 1909, on Idlefonso Island, near the west coast of the Gulf of California, latitude 26° 30′. The first eggs from a colony whose nests were estimated as at least 2,500 were not obtained until April 2. Nine days later eggs were found by Osburn and Lamb on Las Marietas Islands, off the coast of Jalisco, latitude 20° 30′. The eggs at the more southern colony, which contained less than a hundred pairs, had been laid so much earlier that some hatched April 14.

The original discoverer of this species, Dr. A. L. Heermann, said that it bred on Los Coronados Islands, Lower California, near San Diego, but this statement was probably not based on the finding of the eggs, but on the presence of the bird on the near-by coast during the breeding season. Later observers have failed to find the species nesting on these islands, or, indeed, anywhere along the whole western coast of Lower California, though it has been reported breeding

at Magdalena Bay (Bryant), on the Tres Marias (Bailey), and at Mazatlan (Lawrence).

The species is present the whole year on the coast of Lower California and western Mexico from the United States boundary to Tepic, a distance of over a thousand miles, and it is not probable that all these untold thousands of birds gather for nesting purposes on the few acres of the two islands where their eggs have been obtained.

As soon as the young birds are strong of wing both old and young begin to work their way northward. On the southern coast of Cali-

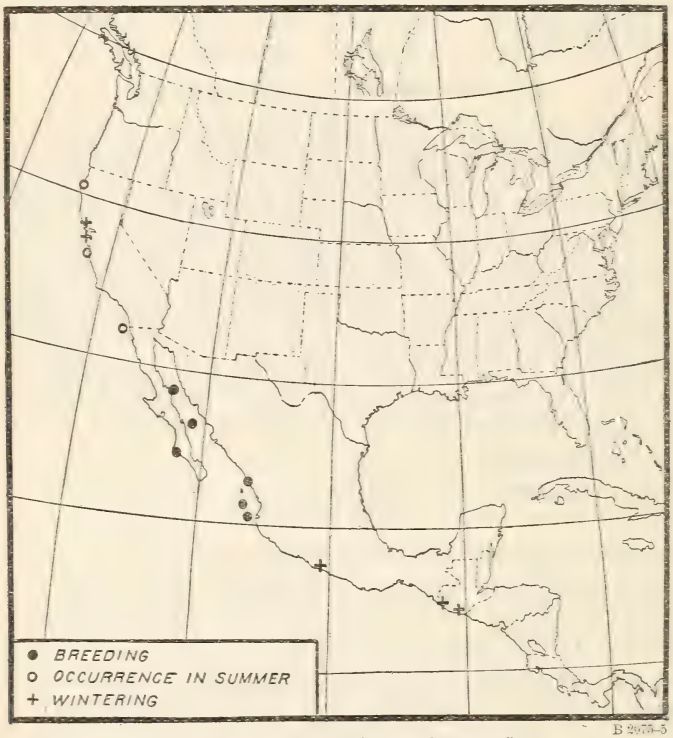

FIG. 24.—Heermann's gull (*Larus heermanni*).

fornia, where only a few birds are present after the middle of March, the numbers begin to increase the last week in May and early in June (Willett). The first northward migrant reached Eureka, Cal., June 1, 1889 (Palmer), and William Head, Vancouver Island, British Columbia, June 28, 1904 (Kermode). The species is an abundant summer migrant along the whole coast and has been taken north to the northern end of Vancouver Island (Saunders).

Its stay in this northern part of the range is not prolonged. In 1894, by the end of July flocks were beginning to pass southward at Monterey Bay, Cal. (Loomis). Though common during July and August at the southern end of Vancouver Island (Kermode), by

September so many had started south that during this month at Yaquina Bay, Oreg. (Bretherton), it outnumbered all other gulls. It is an abundant southward migrant at Monterey, Cal., from August through October, but its numbers begin to decrease in early November (Loomis). The last leave Fort Rupert, at the north end of Vancouver Island, British Columbia, in October (Saunders), and only a few were still present in November, 1889, as far north as Ilwaco, Wash. (Chapman). A specimen was taken at Bodega Bay, Cal., as late as December, 1854 (Lawrence), and a few remain all winter as far north as San Francisco Bay (Henshaw), and casually—January, 1896—even at Esquimault, British Columbia (Macoun). It is less rare at Monterey Bay during the winter (Loomis) and common at that season along the coast of southern California (Willett). It ranges south in winter to Chiapam and San Jose, Guatemala, where specimens were taken in January, 1863 (Salvin). A few were noted in Acapulco Bay, Guerrero, April, 1903 (Nelson and Goldman).

LAUGHING GULL. *Larus atricilla* LINNÆUS.

Range.—Atlantic coast from Maine to British Guiana, the Gulf of Mexico, and the Pacific coast of western Mexico and Guatemala.

Breeding range.—The laughing gull is preeminently a breeding bird of eastern Caribbean Sea. It is a common breeder on the islands of Aruba, Bonaire, Curacao (Hartert), and Margarita (Clark), off the coast of Venezuela, and on the southern islands of the Lesser Antilles—Grenada, Carriacou, Barbuda, Grenadines, and Soufrière. It is recorded from the others of the Lesser Antilles and from Porto Rico and Haiti, but though it undoubtedly breeds at many places throughout this region there is apparently no specific record of the finding of eggs. The bird reappears as a breeder in Jamaica (Field); Cuba (Gundlach); on the coast of Campeche, at Arcas Keys (Nelson); probably at Saddle Cay, British Honduras (Salvin); and the northern Bahamas—Andros, New Providence, Cat, Watling, and probably many other islands, as the species ranges throughout the Bahamas.

Along the United States coast from Florida to Maine the laughing gull was formerly an abundant breeder and 50 to 60 years ago nested in great numbers at many places. A large part of these colonies have been extirpated by the plume hunter, but some birds escaped the slaughter, and during the last few years, under the careful protection of the National Government and of the National Association of Audubon Societies, these remaining colonies have increased in size and the birds are returning to others of their former homes.

On the western and southern coasts of Florida these gulls breed near Passage Key (Pillsbury) and on a key near Cape Sable (Bent and Job). Many of the birds were seen during June, 1904, near Key West,

indicating a breeding colony not far distant. The next colony to the north is on Royal Shoal, Pamlico Sound, N. C., where about 250 birds were nesting in 1909 (Philipp). The coast of northeastern Virginia is the home of the largest colonies in the United States. Here the birds breed commonly on most of the islands from Cobbs Island (Harper) to Chincoteague (Knight). In 1902 about 2,000 birds were nesting on the former. The birds still breed at Brigantine and on Gull Island, N. J., a few in each place (Stone), and some 500 birds near Stone Harbor (Carter). It is probable that a few pairs also still

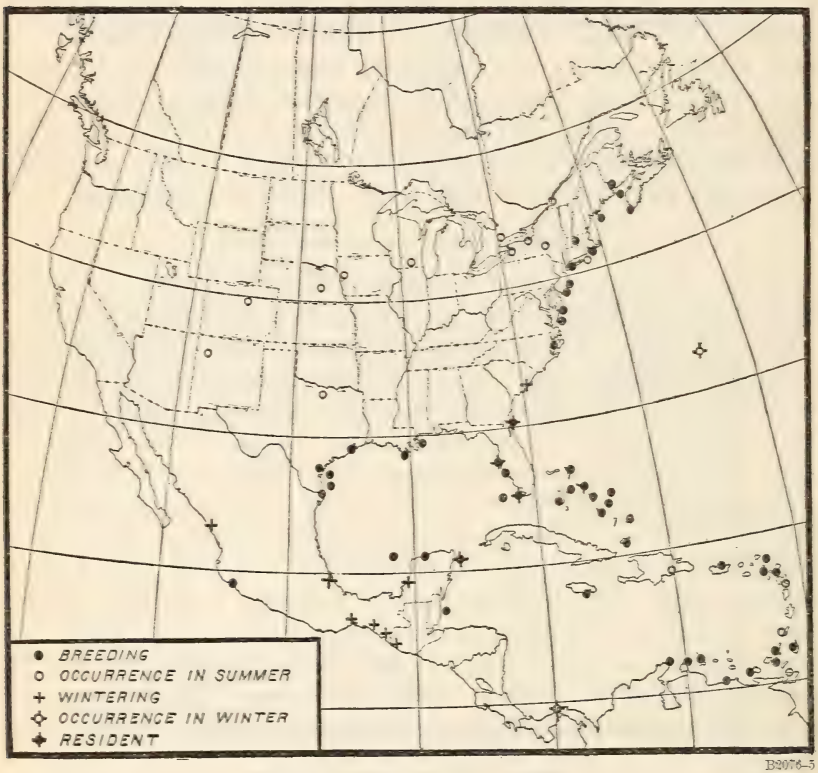

FIG. 25.—Laughing gull (*Larus atricilla*).

breed around Great South Bay, Long Island (Eaton). Sixty years ago on the islands off the Massachusetts coast the laughing gull was a common breeder; now it is restricted to Muskeget Island, but the colony there during the past few years has increased until in 1908 it was estimated to contain a thousand birds (Forbush).

Only one colony of the laughing gull remains in the States north of Massachusetts, and that, near Penobscot Bay, on the coast of Maine, is reduced to scarcely a dozen individuals. Previous to 1870, the species nested at several places along the coast east to the vicinity of Grand Manan, and in the summer of 1856 Dr. Bryant

collected two pairs nesting on Green Island, near Yarmouth, Nova Scotia.

The species is a common breeder on the islands off the coast of Louisiana—East Timbalier, Tern, Breton, and Battledore (Job)—and it still breeds on Bird and Padre Islands and Matagorda Peninsula, on the coast of Texas (Strecker), where 30 years ago it nested at many places from Galveston to Brownsville.

Winter range.—On the Atlantic coast, birds of this species retire in winter to South Carolina and are abundant at Charleston all through the cold season (Wayne). Thence they range throughout the West Indies, and a very few wander south of the breeding range to Georgetown, British Guiana (Loat); Surinam (Saunders); and to Cajutuba, Brazil, February 20, 1835 (Pelzeln). The laughing gull is a common winter bird on the United States coast of the Gulf of Mexico, and less common on the Mexican coast. It even crosses Mexico to the Pacific, where it has been noted on the coast from Mazatlan (Lawrence) to Manzanillo (Baird), Tehauntepec (Sumichrast), Tonala (Nelson and Goldman), and Chiapam, Guatemala, January, 1863 (Salvin). A straggler was taken at Santa Lucia, Peru, December 20, 1876 (Taczanowski); there is one record without exact locality for Chile (Hartert); and one bird was taken the winter of 1881–82 in Bermuda (Reid).

Other wandering birds have been collected at Buffalo, N. Y. (Bergtold); Cayuga Lake, N. Y. (Rathbun); Sodus Bay, N. Y., August 28, 1910 (Guelf); Montreal, Canada, October 24, 1888 (Wintle); Toronto, Ontario, May 23, 1890 (Cross), and June 1, 1898 (Fleming); Blencoe, Iowa, October 10, 1894 (Anderson); Lake Koshkonong, Wis., once, July, 1860 (Kumlien and Hollister); Alda, Nebr., July, 1880 (Powell); Kansas, six times (Bunker); Sloans Lake, near Denver, Colo., December, 1889 (Smith); and Fort Wingate, N. Mex. (Coues).

Spring migration.—The first laughing gulls arrive on the coast of Virginia the first of April (Bailey); Cape May, N. J., April 11, 1907 (Hand); and Muskeget Island, Mass., May 7, 1891, May 10, 1892, May 17, 1893, May 9, 1896, May 7, 1898, average May 10 (Mackay). Two wandered inland to Gainesville, Tex., April 10, 1886 (Ragsdale).

April and May are the nesting months on the coast of Venezuela; May and June find the birds nesting in Florida, Jamaica, and Cuba; the earliest eggs taken on the coast of Virginia were on June 3, and the nesting season continues to the middle of July. Here the eggs of the laughing gull are among those gathered regularly for human food. All the eggs are taken systematically until about July 4, after which the birds are left undisturbed to lay another set and raise their young (Bailey). On Muskeget Island, Mass., the earliest eggs

were found June 24, 1890, June 7, 1893, June 15, 1894, and June 24, 1898 (Mackay).

Fall migration.—Birds are found returning from the north at Orient Point, Long Island, August 11, 1905, and August 1, 1908 (Latham), and at Charleston, S. C., by August 13 (Wayne). Most of the individuals have left the New Jersey coast by the first of October (Stone), and the last was seen at Nantucket, Mass., October 8, 1907 (Gurley); Springfield, Mass., October 1, 1887 (Morris); Vineyard Sound, Mass., October 4, 1886 (specimen in U. S. National Museum); and Sayville, Long Island, N. Y., October 28, 1880 (specimen in U. S. National Museum).

FRANKLIN'S GULL. *Larus franklini* RICHARDSON.

Range.—Interior of North America from Saskatchewan and Manitoba to the Gulf of Mexico, Middle America, and the western coast of South America to Chile.

Breeding range.—Franklin's gull is more strictly a bird of the interior than any other member of the genus. Its center of abundance while breeding is in the marshy lakes of North Dakota, Manitoba, and Saskatchewan. Here it breeds north to Lake Winnepegosis (Macoun); Quill Lake, Saskatchewan (Barnes); and Many Island Lake, Alberta (Bent). Birds have also been seen north to Hayes River, Keewatin (Saunders); Cumberland House (MacFarlane); Osler, Saskatchewan, May 2, 1893 (Colt); Flagstaff, Alberta, April 24, 1908, and May 4, 1909 (Buswell); and near Edmonton, Alberta, May 11, 1907 (Preble). The species is so erratic in its choice of nesting sites that there is no certainty that any of these latter records represent breeding.

This gull does not breed anywhere east of the Mississippi River, but to the westward it is found south to Heron Lake, Minn. (Roberts); Brookings, S. Dak. (Matheson); Pitrodie, S. Dak. (Cheney); Fort Sisseton, S. Dak. (McChesney); and at Devils Lake, N. Dak. (Eastgate). During the years 1890 to 1893 it nested at Spirit Lake, Iowa (Berry), but it probably does not breed anywhere in that State at the present time.

Winter range.—The species has been taken at Mazatlan, Sinaloa, December (Lawrence); Chiapam, Guatemala, January, 1863 (Salvin); and Panama, December 28, 1855 (specimen in U. S. National Museum); but the real winter home is on the coast of Peru and Chile, from Payta, Peru (Saunders), to Concepcion, Chile (Philippi).

Migration range.—During spring or fall migration Franklin's gull has been taken at Laguna de S. Baltazar, Puebla, September (Ferrari-Perez); near the City of Mexico (Saunders); Zacatecas, August (Saunders); Progreso, Yucatan, fall (Saunders); Port Limon, Costa Rica (Cherrie); and the Galapagos (Snodgrass and Heller). It has occurred accidentally at St. Bartholomew Island, Lesser Antilles

(Sundevall); Blacksburg, Va., October 24, 1898 (Smyth); Licking Reservoir, Ohio, October 15, 1906 (Jones); Hamilton, Ontario, once in April and once in October (McIlwraith); near Philadelphia, Pa., October 22, 1911 (Stone); and near Holland, Mich., April 28, 1897 (Barrows). The species has been widely chronicled—through a printer's error—as an abundant bird in Utah, whereas it is only accidental there, having been noted June 2, 1902, and once in 1906, both at Great Salt Lake (Goodwin).

Spring migration.—That the earliest spring dates for Franklin's gull in the United States should come from Minnesota and South Dakota is remarkable. This is an extreme example of what has been noted in lesser degree with many species—that they appear in their southern breeding grounds, earlier than in the region directly to the south which they must have crossed to reach the summer home. The average date of spring arrival at Heron Lake, Minn., is April 4, earliest March 27, 1889; southeastern South Dakota, average April 7, earliest March 27, 1890; Badger, Nebr., average April 2, earliest March 30, 1900; Wall Lake, Iowa, average April 24, earliest April 19, 1911; eastern Kansas, average April 21, earliest April 10, 1891; eastern North Dakota, average May 1, earliest April 21, 1895; Aweme, Manitoba, average April 25, earliest April 8, 1901; Indian Head, Saskatchewan, average May 3, earliest April 25, 1906.

Some other spring dates are: Monteer, Mo., April 20, 1909 (Savage); Liter, Ill., April 21, 1882 (Griffin); Warsaw, Ill., once, May, 1875 (Ridgway); Keokuk, Iowa, April 6, 1902 (Currier); Elk River, Minn., April 13, 1888 (Bailey); Fort Stockton, Tex., April 24 (specimen in U. S. National Museum); Kerrville, Tex., April 26, 1909 (Lacey); Lincoln, Nebr., April 10, 1899 (Wolcott); Alda, Nebr., April 3, 1884 (Powell); and Brookings, S. Dak., March 22, 1908 (Matheson).

The species was common in Callao Bay, Peru, as late as April 11, 1883 (Macfarlane), while a late date is that of one taken at Champerico, Guatemala, May 30, 1873 (Salvin). Other late spring dates are: Kerrville, Tex., May 17, 1910 (Lacey); Nishna Lake, Mo., May 15, 1909 (Burnett); Wall Lake, Iowa, average date of the last seen, May 24, latest June 27, 1910 (Spurrell); Onaga, Kans., May 11, 1910 (Crevecoeur); Clay Center, Kans., June 6, 1909 (Graves); Hudson, Kans., June 9, 1907 (specimen identified at Biological Survey); and Aransas Bay, Tex., June, but not breeding (Armstrong).

The earliest eggs were found at Heron Lake, Minn., May 25, 1885, May 8, 1886, May 18, 1890, and May 26, 1893 (Miller); near Marsh Lake, Minn., May 16, 1885 (Preston); and eggs heavily incubated, near Crane Lake, Saskatchewan, June 13, 1894 (Macoun). An enormous colony, estimated at 15,000 to 20,000 nests with eggs, was found at Lake of the Narrows, Saskatchewan, June 9, 1905 (Bent). The

FIG. 26.—Franklin's gull (*Larus franklini*).

next year not a nest could be found at this lake, owing to a drought that had lowered the water level.

Fall migration.—A very early migrant was taken at Valparaiso, Chile, in September, 1859 (Philippi), though usually the species does not reach southern Texas until the last of that month (Armstrong). The extreme northern part of the range is deserted, however, at an early date, since for 14 years the average date of the last one seen at Aweme, Manitoba, is August 10, latest August 21, 1905 (Criddle); Harrisburg, N. Dak., latest October 1, 1901 (Eastgate); southeastern South Dakota, average of the last seen October 13, latest November 12, 1891; Badger, Nebr., November 12, 1899 (Colt); Lincoln, Nebr., November 17, 1900 (Wolcott); Lawrence, Kans., November 1, 1905 (Wetmore); Madison, Minn., October 8, 1894 (Lano); West Depere,

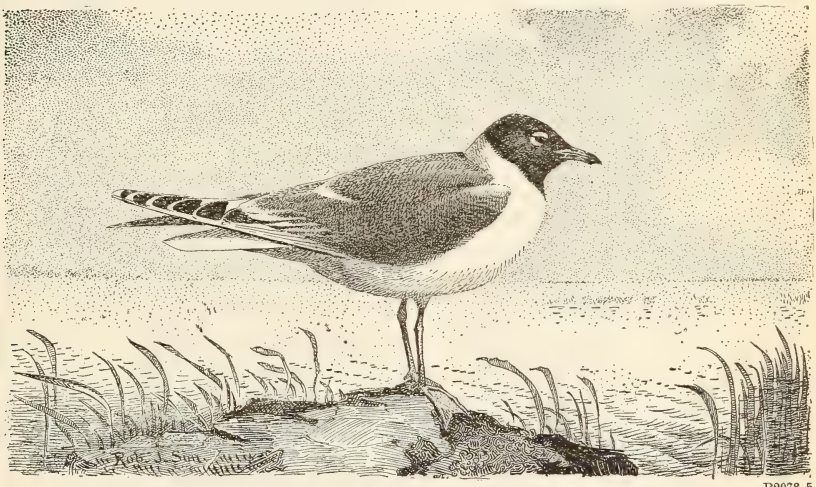

FIG. 27.—Franklin's gull (*Larus franklini*), adult in summer plumage. B2078-5

Wis., October 22, 1884 (Willard); Lake Koshkonong, Wis., a few each year in September and October, latest October 29, 1871 (Kumlien); and Corpus Christi, Tex., November 3–7, 1909 (Thayer).

BONAPARTE'S GULL. *Larus philadelphia* (ORD.)

Range.—North America from Alaska and Mackenzie to Yucatan and Jalisco, Mexico.

Breeding range.—A distinction needs to be made in the case of Bonaparte's gull between its summer home and its nesting range, since many of this species remain through the summer as nonbreeders far south of the district in which they nest. Eggs or nests or unfledged young have been found at only a few places. This gull breeds abundantly in northern Mackenzie in the region around Fort Anderson (MacFarlane), and thence west to Fort Yukon and the lower Yukon, at Nulato (Dall), the only places in Alaska whence the

eggs have been reported. It breeds south to the lakes on the upper Pelly River in Yukon (Pike) and to Atlin in northern British Columbia (Anderson); these five places seem to be the only sure records of actual nesting. Although the species has been reported as nesting at various places south to southern British Columbia, Alberta, Manitoba, southern Keewatin, and even to North Dakota, Minnesota, Wisconsin, and Michigan, it is very suggestive that it is not known

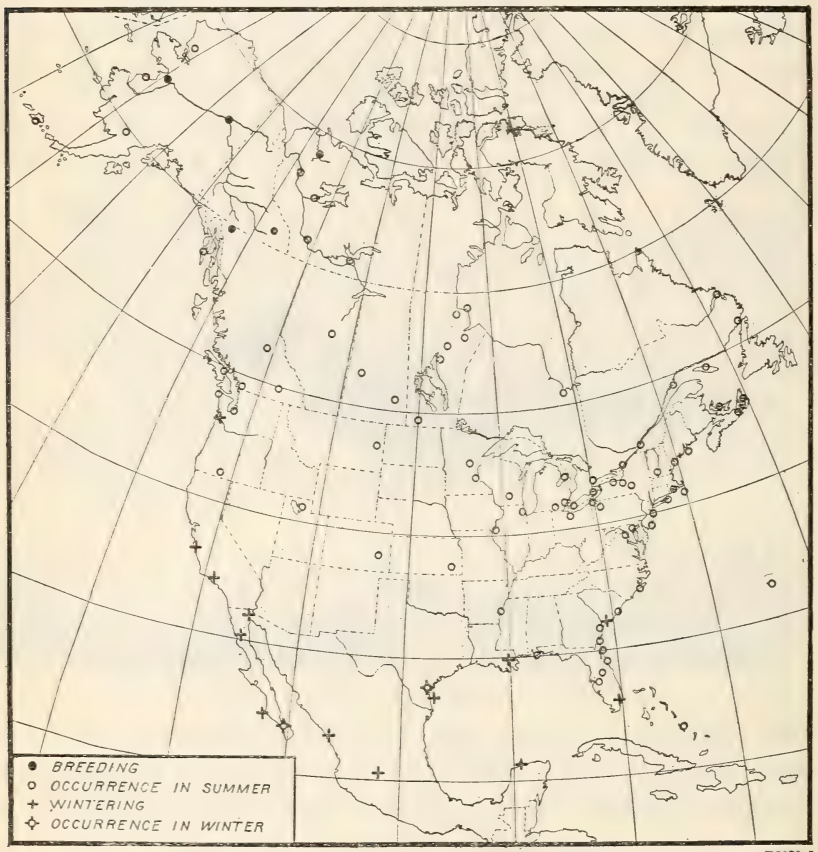

FIG. 28.—Bonaparte's gull (*Larus philadelphia*).

to nest on any of the large lakes in southern Mackenzie, where it would certainly breed if it did at these much more southern localities. The probabilities are that Bonaparte's gull is an arctic- and subarctic-breeding bird which finds its most congenial home on the Arctic lakes and rivers at the farthest north it can find the evergreens on which it places its nest.

During summer, nonbreeding individuals of the species occur commonly on the coast of southeastern Alaska (Swarth) and not rarely

on the coast of British Columbia (Kermode). To this same class should probably be referred the birds seen at the north end of Lake Winnipeg, June 15–17, 1900 (Preble), July 7–9, 1900, in southern Keewatin (Preble), and the late June birds of the Bay of Fundy (Brewer). Audubon notes that individuals found to be abundant about the Bay of Fundy in May were birds one year old that on dissection showed they were not to breed that year.

Winter range.—Bonaparte's gull winters regularly and commonly on the coast from Florida to South Carolina, less commonly to Long Island, and stragglers have occurred at this season north to Maine. It winters on the Gulf coast of the United States and on the Pacific coast north at least to southern Washington. On the coast of Los Angeles County, Cal., it winters commonly, and less commonly to San Quintin, Lower California, January 12, 1907 (Thayer); Magdalena Island, Lower California, December 5, 1905 (Nelson and Goldman); Mazatlan, Sinaloa, December, 1896 (Loomis); and to La Barca, Jalisco (specimen identified at the Biological Survey). It ranges in Florida south to Lemon City (Brown), was noted at Progreso, Yucatan, in late January (Cole), and winters at the mouth of the Colorado River (Rhoads).

Migration range.—Breeding in the interior on fresh water, Bonaparte's gull seeks salt water as soon as its family cares are concluded. Although the principal breeding range is in the northwestern part of the American Continent, many more than half of the gulls go eastward in their migration to spend the winter on the Atlantic coast. The line of flight corresponds in general with the northern limit of tree growth, reaching the coast of Hudson Bay in the vicinity of Cape Churchill, and thence passing around its southern end to the Gulf of St. Lawrence; a few individuals occur along the Labrador coast at the Strait of Belle Isle and as far north as Hamilton Inlet (Bigelow). Another numerous group choose a route a little to the southward by way of Lake Winnipeg and the Great Lakes to the Atlantic coast.

Small numbers go south in fall through the Mississippi Valley to winter on the Gulf coast, but only a few choose this route, for Bonaparte's gull is a bird of lakes rather than rivers, and there are few congenial stopping places in the southern half of the Mississippi Valley.

The small contingent electing the Pacific coast for their winter home go directly south, crossing the main divide of the Rocky Mountains to the coast of southern Alaska, whence they follow down the coast to the winter home. A few seem to wander up the valley of Peace River and cross southern British Columbia to the coast.

The same routes seem to be retraced in spring, except that the Atlantic coast birds at this season probably do not go northeast of the western part of the Gulf of St. Lawrenee.

During migration Bonaparte's gull has wandered north to the mouth of the Kowak River, May 18, 1899 (Grinnell); it was taken on Laysan Island, of the Hawaiian Group, December 27, 1912 (Willett); once on Long Island, in the Bahamas, October 8, 1876 (Moore); in Bermuda, January 27 and December 15, 1849, February 24, 1850, and January, 1876 (Reid); and has been recorded at various places in Europe eleven times as an accidental visitant.

Spring migration.—The average date of arrival at Washington, D. C., is March 30, earliest March 25, 1881; Erie, Pa., average April 20, earliest April 13, 1900; Branchport, N. Y., average April 21, earliest April 17, 1905; North River, Prince Edward Island, average May 21, earliest May 10, 1887; Godbout, Quebec, April 27, 1888 (Comeau); Chicago, Ill., average April 14, earliest April 6, 1903—also a few in winter, December 11, 1906, January 1, 1907, and February 4, 1909; Oberlin, Ohio, average April 16, earliest April 8, 1907, and a straggler or wintering bird February 8, 1909; Ann Arbor, Mich., average April 19, earliest April 16, 1911; Keokuk, Iowa, average March 29, earliest March 28, 1895; eastern Kansas, average April 21, earliest April 7, 1890; Madison, Wis., average April 30, earliest April 22, 1904; Minneapolis, Minn., average May 1, earliest April 1, 1882; southern Manitoba, average April 24, earliest April 20, 1905; Indian Head, Saskatchewan, April 27, 1904 (Lang); Osler, Saskatchewan, May 2, 1893 (Colt); near Fort Resolution, Mackenzie, average May 14, earliest May 9, 1904; Fort Simpson, Mackenzie, May 22, 1860, May 12, 1904; Comox, British Columbia, April 11, 1904; Burrard Inlet, British Columbia, April 13, 1889; and Okanogan Landing, British Columbia, average May 1, earliest April 25, 1907.

The latest date at which Bonaparte's gull was noted at Coronado, Fla., was April 9 (Longstreet); St. Joseph, Fla., April 6, 1886 (Evermann); Frogmore, S. C., May 1, 1885 (Hoxie); Charleston, S. C., May 15, 1909 (Weston); Fort Macon, N. C., May 3, 1869 (Coues); Washington, D. C., average May 1, latest May 30, 1884; Erie, Pa., May 15, 1901, and May 25, 1895; Rochester, N. Y., June 8, 1902 (Eaton); Ithaca, N. Y., June 14, 1908 (Reed and Wright); near Newport, R. I., May 22, 1902 (King); Woods Hole, Mass., June 3, 1891 (Edwards); Monomoy, Mass., June 9, 1886 (Cahoon); Penobscot Bay, Me., to June 20 (Knight); New Orleans, La., March 25, 1894 (Beyer); Chicago, Ill., average May 17, latest May 30, 1908; Oberlin, Ohio, average May 20, latest May 31, 1897; Ottawa, Ontario, June 9, 1885 (White); and at Monterey, Cal., rare after May 18, latest June 2 1897 (Loomis).

Eggs were taken at Fort Yukon, Alaska, June 16, 1861 (Kennicott); June 7, 1862 (Dall); and at Fort Anderson, Mackenzie, June 6, 1862, and June 16, 1863 (MacFarlane). Downy young were taken at Hot Springs, Atlin, British Columbia, July 3, 1914 (Anderson).

Fall migration.—The most pronounced characteristic of the fall migration of Bonaparte's gull is its early date of beginning. At Okanogan Lake, British Columbia, the average date of its arrival in southward migration is July 21, earliest July 9, 1911 (Brooks); this species was noted at Lake Iliamna, Alaska, July 16, 1902 (Osgood); a flock appeared at Erie, Pa., July 4, 1909 (Simpson); one at Ithaca, N. Y., July 24, 1908 (Reed and Wright); Portland, Me., July 27, 1908 (Eastman); Chicago, Ill., July 15, 1906 (Armstrong); on the Yellowstone River, Mont., July 31, 1905 (Cameron); and on the Laramie River, Wyo., July 23, 1857 (Knight).

Probably the normal beginning of fall migration is represented by the numerous birds present at York Factory, Keewatin, July 17–22, 1900 (Preble), and the continuation of this movement is is noted at Baddeck, Nova Scotia, August 4–16, 1886 (Dwight); Portland, Me., August 9, 1905, and August 4, 1906; Charlestown, N. H., August 3, 1897 (Buswell); Monomoy, Mass., August 13, 1885 (Cahoon); Point Judith, R. I., August 5, 1900 (Hathaway); Erie, Pa., August 20, 1890, and August 13, 1902; Atlantic City, N. J., August 21, 1892 (De Haven); Charleston, S. C., August 20, 1909 (Wayne); Coronado, Fla., earliest September 16 (Longstreet); Chicago, Ill., average August 21, earliest August 17, 1907; Oberlin, Ohio, average September 4, earliest August 11, 1910; Moose Factory, Ontario, August 11, 1860 (specimen in U. S. National Museum); Toronto, Ontario, August 4, 1890 (Fleming); Ottawa, Ontario, August 24, 1887 (White); Delavan, Wis., August 26, 1892 (Hollister); southern Manitoba, average August 31, earliest August 15, 1899; and on the coast of Los Angeles County, Cal., common after August 20, 1910 (Willett). The foregoing dates are the records of a comparatively few individuals, most probably nonbreeders or those that lost their eggs or young. The great bulk of the birds move a month to six weeks later. They are most numerous along the New England coast in October and reach the coast of southern California in early November.

The average date of the last one seen at Montreal, Canada, was September 26, latest October 1, 1892 (Wintle); North River, Prince Edward Island, average November 20, latest November 25, 1888 (Bain); Woods Hole, Mass., December 23, 1892 (Edwards); near Oberlin, Ohio, December 17, 1906, and January 6, 1908 (Jones); Toronto, Ontario, November 25, 1898 (Nash), and December 15, 1897 (Fleming); Birch Lake, Alberta, October 13, 1909 (Brooks and Cobb); Fort Good Hope, Mackenzie, as late as October, 1864 (specimen in U. S. National Museum); Margaret, Manitoba, average October 19, latest October 24, 1910 (Black); Aitken, Minn., November 2, 1902 (Lano); Lincoln, Nebr., November 3, 1896 (Bruner); Pueblo, Colo., November 15, 1895 (Nash); Unalaska Island, Alaska,

October 4–5, 1899 (Bishop); southwestern British Columbia, average November 5, latest November 29, 1888; and Klamath Lake, Oreg., November 7, 1909 (Lewis).

[**LITTLE GULL.** *Larus minutus* PALLAS.

The little gull is only a straggler in North America. Its regular summer home is in northern Europe and northern Asia, whence it retires in winter as far south as the Mediterranean and the Adriatic. It is found at this latter season in northern Africa and in northern India. Its claim to a place in the North American list rests on a few specimens taken at widely separated times and places: Bermuda, January 22, 1849, and one in February, 1849 (Wedderburn); Fire Island, Long Island, one about September 15, 1887 (Dutcher); Rockaway Beach, Long Island, one May 10, 1902 (Braislin); and Pine Point, Scarborough, Me., one July 20, 1910 (Norton).]

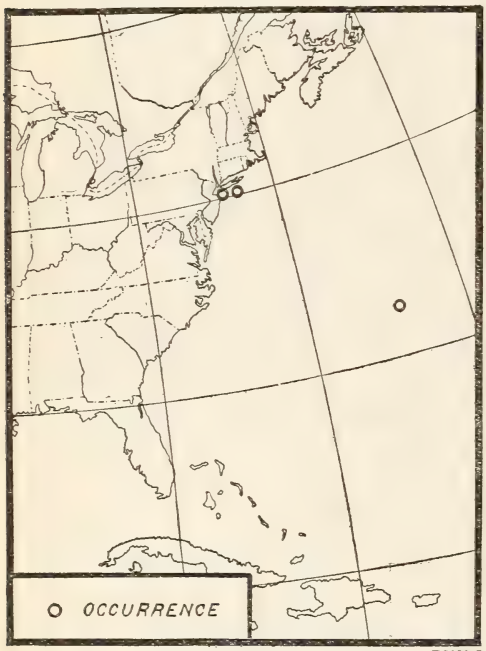

FIG. 29.—Little gull (*Larus minutus*).

ROSS'S GULL. *Rhodostethia rosea* (MACGILLIVRAY).

Range.—Arctic regions of both hemispheres in summer; winter home unknown.

The first eggs known to science of Ross's gull were taken June 13, 1905, at Pokhodskoe, near the center of the delta of the Kolyma River, Siberia (Buturlin). They were already incubated, but incubation could not have been far advanced, for the first arrival, a single bird, was not seen until May 30, though the species became common the next day. Eggs nearly hatched were collected June 26, and young 2 to 3 days old on July 1. Eggs were also taken June 13 at Malaya, about 150 miles to the westward of Pokhodskoe. The birds were equally common in this region in 1911 and nested in large numbers in swamps north of the town of Nijni Kolymsk, in the upper part of the delta, latitude 68° N., longitude 161° 30′ E. The next season the whole coast was searched, from these swamps to the northern end of the delta and along the Arctic coast eastward for 150 miles to Chaun Bay, but not a breeding colony could be found; one stray individual was taken May 3, 1912, at Nijni Kolymsk (Thayer and Bangs).

During Buturlin's stay at the mouth of the Kolyma River he paid particular attention to Ross's gull and obtained definite information in regard to the extent of its breeding range. It is known to breed northwest to Russkoe Ustje, in the delta of the Indigirka River, latitude 71° N., longitude 149° E.; southwest to Abyi, near the Indigirka River, about 300 miles inland from the Arctic coast, latitude 67° 30′ N., longitude 145° E.; northeast to the northeastern part of the Kolyma delta near the Arctic coast, latitude 69° 30′ N., longitude 161° E.; and southeast to Sredne-Kolymsk, on the Kolyma River, about 200 miles from its mouth, latitude 67° 30′ N., longitude 155° E. The breeding range extends, therefore, through 3½ degrees of latitude and 16 degrees of longitude, covering an area a little less than 300 miles square. The species has not been found breeding on any of the Arctic islands either east or west of the Kolyma

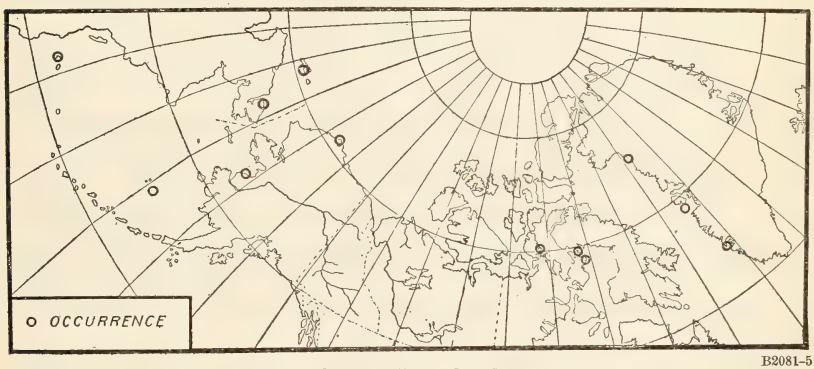

FIG. 30.—Ross's gull (*Rhodostethia rosea*).

delta, but all these islands are rocky, while Ross's gull is exclusively a marsh breeder.

An interesting habit of this gull is its early desertion of its breeding grounds. Only 20 days after the first egg hatched, both old and young left the interior of the delta, and four days later the last one disappeared from the coast at the mouth of the river.

If the 60,000 square miles near the mouth of the Kolyma River really comprise the only nesting place of this gull, then many non-breeding individuals must spend the summer far from the breeding grounds. The type specimen was taken in the height of the breeding season, June 23, 1823, at Alagnak, Melville Peninsula, near Igloolik (Ross). A second was seen there four days later, but the birds were certainly not breeding anywhere in this region, for these are the only individuals recorded in the vast stretch of 2,000 miles between Greenland and Point Barrow. Birds presumably non-breeders were noted by naturalists of the *Jeannette* just west of Wrangell Island, June 22–30, 1880; one at Pitlekaj, July 1, 1879

(Nordenskiold); just north of Bennett Island, in July, 1881 (De Long); in the delta of the Lena River, July 8, 1883 (Bunge)—the conditions here are so similar to those of the nesting site that it would not be surprising if eventually the bird should be found breeding in the Lena Valley; Hvidtenland, just east of Franz Josef Land, earliest July 14, 1895, common the next day (Nansen); Disco, Greenland, June 15, 1885 (Seebohm); and Point Barrow, Alaska, June 9, 1898 (Stone). The last two records are probably of stragglers, but the others would indicate a summer nonbreeding range on the Arctic coast and islands from longitude 173° W. to longitude 63° E., nearly 2,000 miles in this latitude.

The most extensive migrations occur in September and the most notable of these so far recorded are those witnessed by Murdoch at Point Barrow. Here the first birds were seen September 28, 1881, and the species was common for a month, literally thousands passing, all going toward the northeast. A similar flight was witnessed the next year, when the species was abundant from September 10 to October 9. When the same place was visited in the fall of 1897, only two individuals were seen, one on September 9 and the other September 23 (Stone). Similar flights of large flocks of the birds were seen by Birulia, near the New Siberian Islands, in 1901 and 1902. Young birds of the year were abundant September 11, 1901, near Bennett Island, and the next year flocks of young appeared at New Siberia August 16, followed by flocks of old birds September 5. After this both were abundant September 11–15, and disappeared September 20.

Northeast of the New Siberian Islands, in about latitude 81° N., Nansen saw 8 birds in early August, 1894, during the drift of the *Fram*. The naturalists of the *Jeannette* saw them in October, 1879, near Wrangell Island, and on October 10, 1879, a lone individual appeared at St. Michael, Alaska (Nelson).

The winter home of Ross's gull is entirely unknown. Stragglers have been taken at this season on Bering Island, December 10, 1895 (Stejneger); two at Cagliari Bay, in the Sardinian Sea, in early January, 1906 (Martorelli); one at Pointe de la Roche, on the coast of Vendée, France, December 22, 1913 (Sequin); one on Suderoe Island of the Faroe group, February 1, 1863 (Müeller); and one on Helgoland, February 5, 1858 (Gatke). Even stragglers have not been noted anywhere during March and April or before late May, when the birds arrived at their breeding grounds in the delta of the Kolyma River, and were also noted in migration at Verkhojansk, on the Java River, 250 miles from the coast and about the same distance west of the most western known breeding colony. Inhabitants of this latter place reported that visits of this gull were unusual and that it did not breed in that district. Another spring bird, but

evidently a wanderer, was taken on St. George Island, Alaska, May 25, 1911 (Evermann).

In the 35 years following discovery of this species only two individuals were seen, one in latitude 82°, north of Spitzbergen, about 1827 (Ross), and one at Felix Harbor in either 1830 or 1831 (Ross). During the next 20 years only about 10 additional birds were seen, and then in the three years from 1879 to 1882, the real home was found and the birds were seen by hundreds.

In addition to the records given in the foregoing, Ross's gull has been taken on the west coast of Greenland about six times, from Sukkertoppen to Melville Bay (Schalow); north of Spitzbergen in midsummer, about latitude 84° 40′ (Sverdrup)—the most northern record to date; near Franz Josef Land, one in 1873 (Payer); two in Kamchatka (Saunders); and one in Yorkshire, England (Saunders).

SABINE'S GULL. *Xema sabini* (J. SABINE).

Range.—Arctic regions of both hemispheres, south to South America.

Breeding range.—Eggs of Sabine's gull have been taken in only a few localities, but these are scattered across the Arctic coast from Greenland on the east to the mouth of the Yukon on the west, about a hundred degrees of longitude. Then comes a space of a hundred degrees in which the species is not known to breed, and then a large colony of nesting birds is recorded from the Taimyr Peninsula in northwestern Siberia (Middendorff), with no other known breeding place within 2,000 miles in either direction. It is evident that the real summer home of the species is in the Arctic regions of the Western Hemisphere and that the breeders on the Siberian coast must be considered a sporadic colony.

The type specimen was taken in latitude 75° 30′ in Melville Bay, on the west coast of Greenland, July 25, 1818 (Sabine), where the species was common and young were just hatching. The most northern breeding record on this coast is at Thank God Harbor, latitude 81° 40′, where a bird was taken containing an egg just ready to be laid (Davis). To the westward the breeding range is much farther south, since eggs were taken in latitude 63°, on Southampton Island in Hudson Bay during the summer of 1904 (Low). Eggs were found by Collinson at Cambridge Bay, and the species is common to abundant as a breeder on the shores of Liverpool and Franklin Bays, Mackenzie (MacFarlane). It has not been found nesting on any of the Arctic islands in either hemisphere, though it was taken north to Walker Bay (Collinson), Wellington Channel (Sutherland), and Prince Regent Inlet (Sabine). It was found common at Igloolik, on Melville Peninsula, but apparently did not breed near there. Nor is it certain that it nests at Point Barrow, where

Murdoch, Seale, and McIlhenny found it common in migration. It breeds commonly at the mouth of the Yukon and on the shores of Norton Sound and south along the Alaska coast to the mouth of the Kuskokwim (Nelson).

Winter range.—The only place where Sabine's gull has been found in winter is on the coast of Peru. Here it is common in Callao Bay from December (Markham) to April (Macfarlane). It was also taken

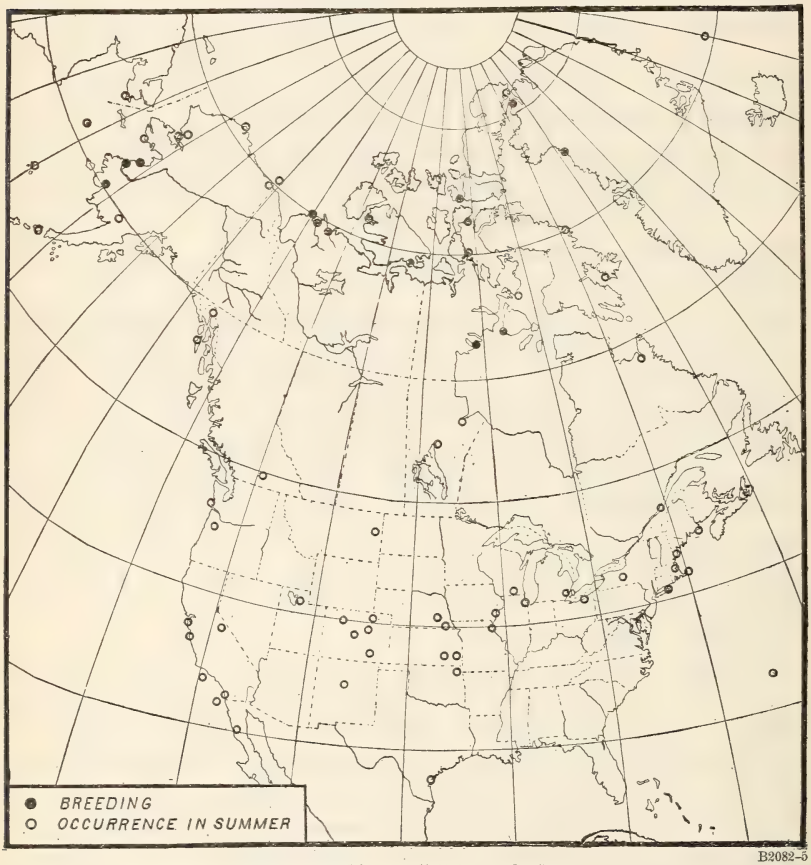

FIG. 31.—Sabine's gull (*Xema sabini*).

at Tumbez, on the extreme northern coast of Peru, in September, 1872 (Steere). Except as single birds have been found wandering far inland, the record for Callao Bay is the only known occurrence of the species for half the year, from October to April. Whenever the winter home of Ross's gull is discovered Sabine's gull will probably be found there also, for the two species arrived together at the mouth of the Kolyma River, Siberia, the first of June, 1905 (Buturlin), and were together when seen in migration in May several hundred miles west of that district (Buturlin).

Migration range.—During both spring and fall Sabine's gull occurs regularly on the Atlantic and Pacific coasts of the United States and has also wandered inland so many times that there are records of it from most of the States of the Union. There are no Mexican, Central American, or West Indian records, except a few on the western coast of Lower California, and no record on the whole coast of the United States from Long Island to Texas. The bird is known from Spitzbergen, Jan Mayen, the coasts of the North Sea, and inland to Austria-Hungary, and Lake Geneva, Switzerland. It is a fairly common fall migrant on the coast of Siberia, at Plover Bay (Dall), and was once collected at Novo Marinsk at the head of the Gulf of Anadyr (Allen).

Spring migration.—The earliest dates of arrival at St. Michael, Alaska, were May 7, 1851 (Adams), and May 10, 1878 (Nelson), and the species became common there May 15–25. The first were seen at Point Barrow June 2, 1882, and June 6, 1883 (Murdoch), and the first at Camden Bay, Yukon, May 13, 1854 (Collinson). The fact that the species was still common in April at the southern limit of its range, in Peru, would seem to indicate that it remains in its winter home until the breeding season is near at hand and then performs a late and rapid migration.

During the period of spring migration the species is rarely noted in North America south of the breeding grounds, and has been recorded from Scarborough, Me., May 31, 1877 (Smith); Indian Head, New Brunswick, May, 1878 (Boardman); Chicago, Ill., April 1, 1873 (Nelson); near Janesville, Wis., April, 1897 (Hollister); near Norway House, Manitoba, June 11, 1859 (Kennicott); Cumberland Gulf, June 15, 1884 (Henderson); Winter Island, Melville Peninsula, June 29, 1822 (Parry); Fort Conger, Ellesmere Island, July 6, 1882 (Greely); San Diego, Cal., May 15, 1905 (Nelson and Goldman); Monterey, Cal., several, April 9, 1903 (Breninger); one, May 12, 1897 (Loomis), and 11 birds, May 15–21, 1907 (Beck); near Bellabella, British Columbia, several, May 24, 1911 (Wetmore); and Chilkat Inlet, Yukon, one, June 1, 1899 (Osgood).

The earliest eggs at St. Michael, Alaska, were laid June 5; by June 13, 1880, full complements of eggs were common; and the earliest young were on the wing July 15–20 (Nelson). Eggs were just hatching in Melville Bay, Greenland, July 25, 1818 (Sabine), while eggs were taken on Southampton Island, Hudson Bay, June 28, 1908 (Low), and young were already on the wing at Point Dalhousie, Mackenzie, August 8, 1848 (Richardson).

Fall migration.—Evidently some individuals start southward before the normal ending of the breeding season, for the first fall migrants have appeared at St. Matthew Island, Alaska, July 15, 1899 (Fisher); near mouth of Georges River, Ungava Bay, middle of July, 1884 (Turner); Raynor South, Long Island, N. Y., July, 1837 (Giraud);

while in 1907 the first fall migrants appeared at Monterey, Cal., July 22 (Beck), and were thus 2,000 miles south of the nesting grounds at the time the earliest young were just learning to fly. In other years the first appeared in August: Santa Cruz Island, Cal., August 6, 1909 (Wright); Monterey, Cal., August 23, 1894 (Loomis); near Los Coronados Islands, Cal., August 20, 1910 (Wright); Unimak Island, Alaska, August 14, 1901 (McGregor); St. Lawrence Island, Alaska, August 29, 1879 (Nelson); San Quintin, Lower California, August 14, 1905 (Nelson and Goldman); and North Truro, Mass., August 21, 1889 (Miller).

In the interior Sabine's gull has been taken at Cayuga Lake, N. Y., about 1887 (Eaton); on the Mississippi River opposite Clark County, Mo., September, 1900 (Worthen); once at Cleveland, Ohio (Winslow); Ann Arbor, Mich., November 17, 1880 (Covert); Burlington, Iowa, October 15, 1891, and October 12, 1894 (Bartsch); Delavan Lake, Wis., October 7, 1900 (Hollister); Big Lake, near Claremore, Okla., November, 1910 (Strode); Humboldt, Kans., September 21, 1876 (Snow); Beatrice, Nebr., September 2, 1899 (Swenk); Lincoln, Nebr., near, September 30, 1899 (Carriker); Albuquerque, N. Mex., October 7, 1900 (Birtwell); Ogden, Utah, September 28, 1871 (Allen); Terry, Mont., several, September 22–23, 1904 (Cameron); Corvallis, Oreg., September 14, 1904 (Shaw); Mono Lake, Cal., September 18, 1901 (Fisher); and Okanogan Lake, British Columbia, September 9, 1897 (Brooks). It is somewhat strange that there should be about as many records of Sabine's gull in Colorado as in all the rest of the interior. Most of them are between September 3 and November 17, and come from the western edge of the plains from Fort Collins to Denver, but one was taken September 26, 1886, in the mountains near Breckenridge at 10,000 feet altitude (Carter).

The last seen at St. Michael, Alaska, was on October 10, 1879 (Nelson); Point Barrow, Alaska, October 22, 1881 (Murdoch), and September 17, 1897 (Stone); Kowak River, Alaska, September 5, 1898 (Grinnell); Sea Island, Shoalwater Bay, Wash., September 24, 1897 (Dawson); San Francisco Bay, Cal., October, 1889 (Bryant); Monterey, Cal., October 5, 1899 (Loomis), October 28, 1907, and October 6, 1909 (Beck); Igloolik, Melville Peninsula, August 13, 1822 (Parry); Kikkerton Island, Greenland, October 6, 1877 (Kumlien); near Portland, Me., September 22, 1899 (Knight); Boston Harbor, Mass., September 27, 1874 (Brewster); Gardiners Bay, Long Island, October 6, 1899 (Worthington); Quebec City, Canada, about October 1, 1909 (Dionne); and Corpus Christi, Tex., October (Armstrong).

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